THE RUBBER AGE AND TIRE NEWS

American Soldiers Fanning Gas Out of Trenches
(C) Committee on Public Information

PUBLIC LIBRARY
REFERENCE DEPARTMENT

March 25th
1918

Ten Cents
a Copy

PUBLISHED SEMI-MONTHLY
BY
THE GARDNER, MOFFAT CO., Inc.
120 W. 32nd ST. NEW YORK

BUFFALO

BRANDS

RECLAIMED

RUBBER

U. S. RUBBER RECLAIMING CO., Inc.

42nd ST. BUILDING, NEW YORK

United States Rubber Company

1790 Broadway
New York

The Largest Rubber Manufacturers in the World

Indexed Buyers' Guide to Rubber Products

Below will be found a list of Rubber Products and the index to the Rubber Companies who manufacture each item, compiled from information furnished by the manufacturers. The key symbols after the names of the articles refer to the names of manufacturers that appear in the Alphabetical List of Rubber Manufacturers that follows this BUYERS' GUIDE. Further information for Buyers will be gladly furnished by The Rubber Age and Tire News

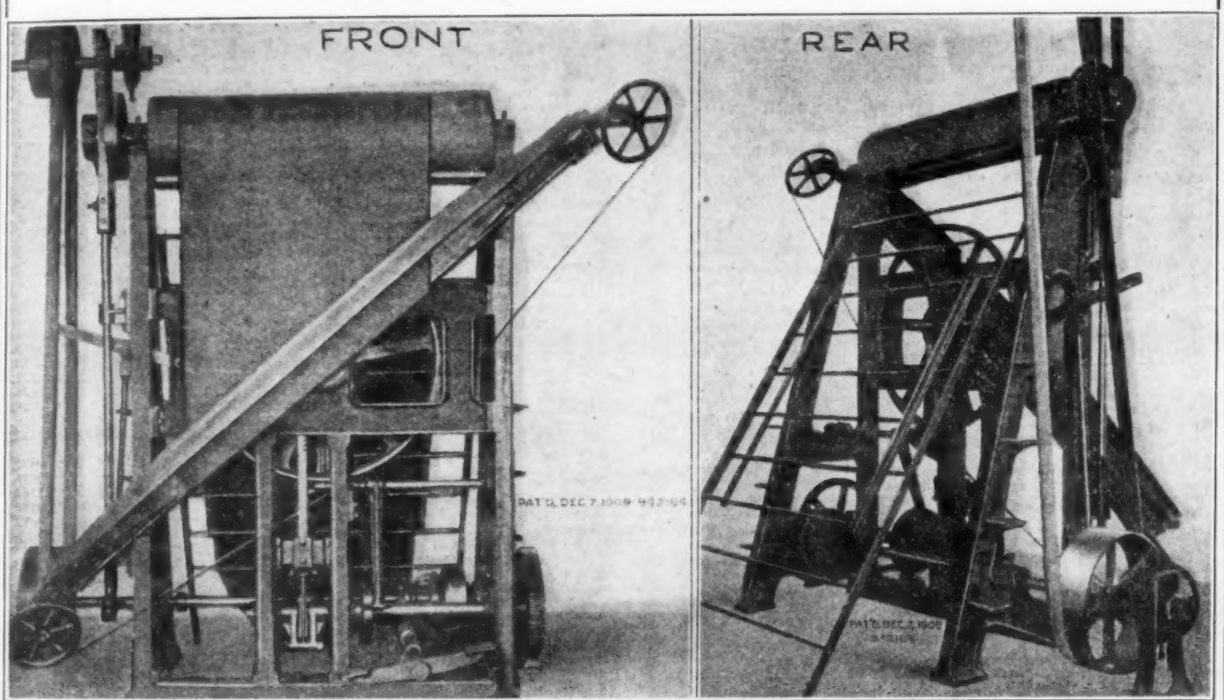
Mechanical Rubber Goods

Aircraft Equipment, D40.
Anti-Rattlers, B42, B72, C54, C64, E32, F20, F22, G50, I12, M42, N28, U4, U10, C6, D38, G22.
Arch Supporters, F22, L30, C8, G22.
Bags, Air, A40.
Bags, Gas, D6, F36, I12, M42, M52, M66, P20, Q4, U10, C6, D38, G22, A38.
Bags, Gas Main, D6, M52, M66, P20, Q4, U10, C6, G22.
Bags, Hat, B42, C64, E26, M50, N28, P20, R20, U4, U10, C6, G22.
Balata, Specialties, B42, D22, R18, S68, U10, C6.
Balls, Closet, M50, M52, S50, S68, U10, C6, W26, G22, C18.
Balls, Faucet, U10, C18.
Balls, Fuller, B26, C40, C54, E22, E26, I12, M42, M50, M52, P20, R18, S50, S68, T6, U10, V22, C6, D38, W26, G22, C18, A38.
Balls, Gas Main, D6, M52, U10, C6, G22.
Balls, Tank, C40, M50, M52, S68, U10, C6, G22, C18, A38.
Balls, Trap, B42, M52, U10, C6, G22.
Balls, Valve, B42, C40, I12, M50, M52, R18, S68, U10, C6, D38, W10, G22, C18.
Bands, Carpet Sweeper, B42, B72, C32, C40, C64, D36, E26, E32, G50, M42, N28, P20, Q4, R18, S50, T6, U10, C6, D38, W10, G22, C18, A38.
Band, Trend, T3.
Bands, Hose, U10.
Bands, Umbrella, D6, S50, U10, C6, D38, G22.
Belting, Balata, B42, B72, D22, M24, R18, S68, U4, U10, V6, C6.
Belting, Band Saw Bands, B42, B72, C40, C54, E26, G50, M50, N28, P20, Q4, R18, R20, U4, U10, V12, C6, D38, W10, G22.
Belting, Canvas, B50, D22, M24, M50, N52, R20, S68, U4, U10, V6, C6, D38.
Belting Conveyor, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M24, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V13, V42, C6, D38, G22, C18.
Belting, Elevator, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M24, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, W42, C6, D38, G22.
Belting, Endless, B42, B50, C40, C54, D22, E26, G30, G50, M24, M50, M52, N28, T20, Q4, R18, R20, S68, U4, U10, V6, V12, W42, C6, D38, G22.
Belting, Flange Conveyor, B42, N28, R18, R20, S68, U4, U10, W42, C6, D38, G22.
Belting, Friction Surface, B42, B50, C40, C54, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Belting, Gold Dredger, B42, B50, E26, G30, H8, P20, Q4, R18, R20, U4, U10, V6, V12, C6, D38, G22.
Belting, Grader, B42, B50, B72, C40, D22, E26, G30, C50, H8, M50, M52, N28, Q4, R18, R20, T6, U4, U10, V6, V12, C6, D38, G22.
Belting, Grain Elevator, B42, B50, B72, C40, C54, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, V6, V12, W42, C6, D38, G22.
Belting, Laggings, B72, C54, E26, G30, G50, M52, Q4, R18, R20, U4, U10, C6, D38, G22.
Belting, Oil Well, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V6, V12, C6, D38, G22.
Belting, Polishing, B42, C40, C54, E26, G30, G50, M50, M52, Q4, R18, R20, S68, U4, U10, C6, D38, G22.
Belting, Pulley Covering, B42, B50, B72, C54, E26, G30, G50, M50, M52, Q4, R18, R20, T6, U4, U10, V12, C6, D38, G22, A38.
Belting, Splicing, B42, C40, D22, E26, G30, G50, R18, R20, U4, U10, C6, G22.
Belting, Stitched, B42, B50, C40, C54, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Belting, Transmission, A24, B42, B50, B72, C40, C54, D22, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, W42, C6, D38, G22.
Belting, Vanner, B42, N28, R18, R20, U4, U10, V6, C6, D38, G22.
Belts, B42, B50, B72, C40, C54, D22, E26, G10, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V6, V12, W42, C6, D38, G22.
Belts, Polishing, B42, C40, C54, E26, G10, G50, M50, M52, Q4, R20, S68, U4, U10, C6, D38, G22.
Bindings, Rubber Carpet, U10.
Blades, Squilgee, C18.
Blankets, B42, B50, B72, G50, M52, R20, S68, U10, C6, D38, G22.
Blankets, Printers', B42, G50, K12, M52, R20, S68, U10, C6, D38, G22, A38.
Blocks, B42, B72, C40, C54, C64, F22, G50, H8, M50, M52, R18, R20, S50, U4, U10, C6, D38, W26, G22.
Blocks, Hat, U10.
Bolsters, A58, B42, C54, G50, R18, R20, U10, C6, D38, G22.
Brewers' and Bottlers' Supplies, B72, C40, C54, C64, E22, E26, F20, G50, M50, M52, N6, R18, R20, S50, S68, T6, U4, U10, W42, C6, D38, W10, G22, C18, A38.
Brushes, Rubber, M42, S50, U10, C6, G22, C18.
Buckets, Pump, B72, C64, M50, M52, R18, S50, U10, C6, G22, C18.
Bulb Sets, D2, D6
Bulbs, Horn, U10.
Buffers, C40, C54, C64, E22, E26, G30, G50, N6, R18, S50, S68, U4, U10, C6, D38, G22, A38.
Bumpers, A38, B42, B72, C32, C40, C54, C64, E22, E26, E32, F20, F22, G30, G50, H8, I12, M42, M50, M52, M66, N28, Q2, Q4, R18, R20, S50, S68, T6, U4, U10, V12, V22, C6, D38, P52, W26, W10, G22, C18, A38, D40.
Bumpers, Bar, C54, C64, F20, G50, H8, I12, M42, M50, M52, T6, U4, U10, C6, D38, G22, C18.
Bumpers, Car Seat, C54, C64, F20, G30, G50, H8, I12, M50, M52, N28, Q4, R20, S50, S68, T6, U4, U10, V12, C6, D38, W26, G22, C18.
Bumpers, Door, B72, C40, C54, C64, F20, F22, G30, G50, H8, M42, M50, M52, Q4, R18, S50, S68, U4, U10, C6, D38, W26, G22, C18, A38.
Bumpers, Furniture, C40, C64, F20, M50, M52, N28, Q4, R18, R50, U4, U10, C6, D38, G22, C18.
Bumpers, Screw, C64, F20, I12, M50, M52, P4, U4, U10, C6, D38, G22, C18.
Bumpers, Tank, C40, F20, M50, M52, Q4, U4, U10, C6, D38, G22, C18.
Bumpers, Wagon, A58, B42, C40, C54, C64, D36, E32, F20, F22, G50, M50, M52, N28, Q6, R18, S50, T6, U4, U10, V12, C6, D38, G22, A38.
Bushings, A76, B72, C40, C64, E22, E26, F20, H8, M42, M50, M52, R18, S50, S68, T6, U4, U10, V12, C6, G22, C18, A34.
Bushings, Flanged, B72, C40, F20, H8, M42, M50, M52, S50, U4, U10, V12, C6, G22, A38.
Cement Rubber, H20, V4, U2.
Cement, Leather, E16.
Clamps, Hose, A24.
Cloths, Card, B66, U10, C6, G22.
Cloth, Tobacco, B50.
Collets, M52, U10, C6, G22, C18.
Connections, Hose, B50, C40, C54, C64, E26, E32, F20, G30, M50, M52, T6, U4, U10, C6, D38, M82, W10, G22, C18, A38.
Cord, Rubber, B42, B50, B72, C40, C54, C64, D6, E26, F20, G30, G50, H8, M50, M52, N28, R18, R20, S50, U4, U10, V12, C6, D38, W26, G22.
Cores, Hose, U10.
Couplings, Hose, U10, A24, M82.
Coverings, Gin Roll, U10.
Cups, Force, C54, C64, D36, E22, E26, E32, F20, F36, G50, M42, M52, Q4, S50, S68, U10, V22, C6, D38, W26, G22, C18, A38.
Cushions, Billiard, B42, B50, B68, C54, G30, R20, S50, U4, U10, C6, D38, G22.
Cushions, Bradley Hammer, U10.
Cushions, Heel, F32, L30, G22.
Cushions, Ring, B42, C40, D2, D6, S50, U4, U10, C6, G22.
Decarbonizers, S37.
Diaphragms, B42, B72, M52, U10, C6, G22, C18.
Discs, Bib, B24, C40, C54, E22, M42, M50, M52, P20, S50, S68, U10, V22, C6, G22, C18, A38.
Discs, Bottlers', B72, C40, E26, F20, G50, H8, M52, S50, S68, U10, C6, G22, C18, A38.
Discs, Valve, B24, B42, C40, C54, E22, E26, F20, F22, G30, G50, M50, M52, P20, Q4, R18, S50, S68, U4, U10, V12, C6, D38, W10, G22, C18.
Dolls, Rubber, D6, F14, M52, U10, C6.
Dressing, Belt, U10.
Elbows, E26, M50, M52, S50, S68, U10, V22, C6, G22, C18, A34.
Experimental Work, B72, C40, C54, E22, E26, E32, G50, M42, M50, N6, R42, S50, T6, U10, V12, C6, D38, W10.
Eyes, Bleachery, B42, U10.
Faucet Attachments, M42, M52, C6, G22, C18.
Feet, Typewriter, C45, C64, E32, G50, H8, I12, M42, M52, R18, R50, S50, U10, V12, V22, C6, D38, W26, G22, C18, A38.
Filling, Pulley or Sheave, C54, H8, M50, M52, N28, Q4, R18, T6, U10, C6, D38, G22.
Fire Appliances, A24, B50, G50, U4, U10, C6, D38, G22.
Fittings, Hydraulic, C40, T6, U10, C6, M82, G22, A38.
Flange, Closet Floor, C54, E32, G50, M50, M52, Q4, T6, U10, C6, D38, G22, C18.
Furnace Sets, D6, F32, M50, M52, Q4, S50, U10, C6.
Gaskets, Air Hose, B42, C40, C54, E22, F20, G30, G50, H8, M50, M52, P20, Q4, R18, R20, S50, S68, T6, U4, U10, C6, D38, P52, W26, W10, G22, C18, A38.
Gaskets, Basin, B42, C54, E22, F20, G50, I12, M50, M52, Q2, Q4, S68, T6, U4, U10, C6, D38, G22, C18, A38.
Gaskets, Screen, U10.
Gaskets, Sink, B42, C54, E22, F20, G50, I12, M42, M50, M52, Q4, S68, T6, U4, U10, C6, D38, G22, C18, A38.
Gaskets, Unvulcanized, P38.
Gum, Dental, D6, G50, H60, M42, T14, T16, U10, C6, G22, A34.
Gum, Hat, U6.
Gum, Rubber, S37.
Gum, Stamp, B42, C64, F20, G50, H60, M42, M50, M66, S50, T14, U4, U10, C6, D38, G22.
Heels, A38, B42, B50, C32, C42, D36, E26, E32, F20, F22, F32, G10, G16, G30, G50, L30, M52, M66, N28, Q2, R20, T2, T16, U4, U10, C6, D38, P52, W26, W10, G22.
Hose Accessories, B50, C40, C64, E26, G50, M50, N28, R20, T6, U10, C6, D38, M82, G22.
Hose, Acid Tubing, B42, B50, C40, C54, C64, D6, E20, E26, G30, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S50, S68, T6, U4, U10, V12, W42, C6, D38, W10, G22.
Hose, Agricultural, B42, B50, C40, C54, C64, E20, E26, G30, G50, M50, M52, N28, Q4, R18, R20, S68, T6, U4, U10, W42, C6, D38, G22, D40.
Hose, Air, U10.
Hose, Air, Woven Steel Armored, W42.
Hose, Air Brake, B42, B50, C54, E20, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.
Hose, Air Drill, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, M82, G22.
Hose, Aeroduct Vacuum, B42, B50, C40, E20, E26, G50, H8, M50, P20, Q4, R20, S68, T6, U4, U10, C6, G22.
Hose, Armored, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.
Hose, Ash Pit, B42, B50, C40, C54, E20, E26, G50, H8, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.
Hose, Automobile Radiator, B42, B50, C32, C40, C54, C64, E20, E26, E32, F20, G30, G50, H8, I12, M42, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22, A38.
Hose, Beer Tubing, B42, B50, C40, C54, C64, D6, E20, E26, G30, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, T16, U4, U10, V12, W42, C6, D38, G22, C18.
Hose, Boiler Test, B42, B50, C40, C54, C64, E20, E26, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Hose, Boiler Washout, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.
Hose, Braided Chemical, B42, B50, E20, E26, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.
Hose, Braided Pneumatic, B42, B50, C40, E20, E26, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, W42, C6, D38, G22.
Hose, Brewers', B42, B50, C40, C54, C64, D6, E20, E26, G30, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Hose, Cement Gun, B42, B50, C64, E20, G50, M50, N28, P20, R20, S68, U4, U10, V12, C6, D38, G22.
Hose, Chemical Engine, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Hose, Cloth Inserted Tubing, B42, B50, C40, C54, C64, D40, E20, E26, E32, F22, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.
Hose, Coal Sprinkler, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V12, W42, C6, D38, M82, G22.
Hose, Coal Sprinkler, Woven Steel Armored, W42.

An Improved Machine for Cutting Cloth on the Bias

Patented by Andrew C. Bolton

December 7th, 1909 **No. 942164**



Front View **Back View**

This machine has many advantages over any other now in the market for cutting frictioned cloth on the bias, a few of which are, accuracy in cutting, simplicity and lightness of construction, quickness in adjustment, occupying but a very small floor space, and can be operated at a practically nominal cost, and may be technically described as an upright bias cutter.

It will cut fabric of any width and on any angle.

A practical and unique feature about this cutting device is, that the knife can instantly be changed to cut on any angle from a horizontal or at a right angle to the length of the material to an angle of sixty (60) degrees, without the adjustment of any other part of the machine.

Patented all over the world. If interested please send for descriptive pamphlet and further information to the

Spadone Machine Co., Inc.

126-8 DUANE STREET **NEW YORK**

Indexed Buyers' Guide to Rubber Products—Continued

Mechanical Rubber Goods—*Continued*

Hose, Coke, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Compressed Air, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Conducting, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose Connections, A24, B42, B50, B52, C40, C64, E26, G50, M50, N28, Q4, R18, R20, S68, T6, U4, U10, C6, D38, M82, G22, A38.

Hose, Cotton, B50, C54, E26, G50, H8, M50, N28, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Hose Coverings, B42, B50, C40, E20, E26, G50, M50, N28, Q4, R18, R20, S68, U4, U10, V12, C6, D38, M82, G22.

Hose, Deck, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Discharge Agricultural, M52, U10.

Hose, Divers', B42, B50, C54, C64, E20, E26, G30, G50, H8, M50, N28, P20, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Dredging Sleeves, B42, B50, C40, C54, C64, E26, G30, G50, H8, M50, N28, P20, Q4, R18, R20, T6, U4, U10, V12, C6, D38, G22.

Hose, Dynamo Steam, B42, B50, C40, C54, E20, E26, H8, M50, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Factory Fire, B42, B50, C40, C54, E26, G30, G50, H8, M50, N28, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Hose, Fire, B42, B50, C40, C54, E20, E26, G30, G50, H8, N28, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Hose, Fire, Cotton, Rubber Lined, B42, B50, C40, C54, E26, G30, G50, H8, N28, Q4, R18, R20, U4, U10, V12, W42, C6, D38, G22.

Hose, Fire Engine Suction, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Fire Extinguisher Tubing, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose Fittings, A24, B42, B50, C40, E26, G50, H8, N28, R20, U10, V12, C6, D38, M82, G22.

Hose, Flue Cleaning, B42, B50, C40, C64, E20, E26, G30, G50, H8, M50, N28, P20, Q4, R18, R20, S68, T6, U4, U10, C6, D38, M82, G22.

Hose, Garden, B42, B50, C40, C54, C64, D40, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Gas, B42, B50, C40, C54, **C64, E20, E26, F22, G30, G50,** H8, M50, M52, P20, Q4, R18, R20, T6, U4, U10, W42, C6, D38, M82, G22.

Hose, Gasoline, B42, B50, C40, C54, C64, D40, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Gas Tubing, B42, B50, C40, C54, C64, E20, E26, F20, G30, G50, H8, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22, C18, A38.

Hose, Hard Rubber Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U47, U107, V12, C6, D38, G22.

Hose, Hot Water, B42, B50, C40, C54, C64, D40, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Hydraulic, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Lathe Turret, M52.

Hose, Lawn, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Linen, B50.

Hose, Mill and Factory, B42, B50, C40, C54, E20, E26, G30, G50, H8, N28, C6, D38, G22.

Hose, Molded, B42, B50, C40, C54, E20, E26, G30, G50, H8, J10, M50, N28, P20, Q4, R18, R20, U4, U10, W42, C6, D38, G22.

Hose, Oil, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68 T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Oil Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Paint, B42, B50, C40, C54, C64, E20, E26, G50, H8, M50, P20, R18, R20, T6, U4, U10, V12, C6, M82, G22.

Hose, Phosphate Suction, B42, B50, C40, C54, E20, E26, G50, H8, M50, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Pneumatic, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Radiator Steam, U10.

Hose, Rubber, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, V42, C6, D38 M82, G22.

Hose, Sand Blast, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42 C6, D38, G22.

Hose, Sand Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Smooth Bore Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42 C6, D38, G22.

Hose, Soda, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Spray, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, M82, G22.

Hose, Steam, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Steam Drill, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Steam Woven Steel Armored, W42.

Hose, Street Washing, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Submarine, B42, B50, C40, E20, E26, G50, H8, M50, N28, P20, Q4, R18, R20, S68, U4, U10, C6, G22.

Hose Suction, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Tanner, B42, B50, C40, C54, E20, E26, G50, H8, M50, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Tender or Tank, B42, B50, C40, C54, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, U12, V12, W42, C6, D38, M82 G22.

Hose, Turbine Cleaner, B42, B50, C40, C54, E20, E26, G50, H8, M50, P20, Q4, R18, R20, S68, T6, U4, U10, W42, C6, D38, G22.

Hose, Underwriters, B42, B50, C40, E20, E26, G30, G50, N28, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Hose, Vacuum, B42, B50, C40, E20, E26, G30., G50, H8, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Hose, Vinegar, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Voice Tubing, B42, B50, C54, E20, E26, G50, H8, M52, Q4, R18, R20, S68, U4, U10, V12, C6, D38, M82, G22.

Hose, Water, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Hose, Water, Woven Steel Armored, W42.

Hose, Wine, B42, B50, C40, C54, C64, E20, E26, G50, H8, M50, M52, M66, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.

Hose, Wire Bound, B42, B50, C40, C54, C64, E20, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, M82, G22.

Keys, Typewriter, U10, C6.

Lagging, B72, C54, C64, G50, R18, T6, U4, U10, C6, G22, B72.

Linings, Brake, E26, E32, G30, H8, J10, Q4, T6, U4, U10, C6, G22.

Linings, Hose, U10.

Linings, Inner, D38.

Linings, Robe, B50.

Mallets, B42, C54, C64, D6, E22, F20, G50, H8, M42, M50, M52, P20, Q4, R18, R20, S50, T6, U4, U10, V12, C6, P52, G22, A38.

Matting, Corrugated, B42, B50, B68, C40, C54, E26, E32, F20, F36, G30, G50, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, V12, W42 C6, D38, S54, G22, A38.

Matting, Bath Tub, B42, B50, C54, E26, F20, G50, H8, M50, M52, N28, P20, Q4, S68, T6, U4, U10, C6, D38, G22.

Matting, Cuspidor, B42, B50, C40, C54, E26, E32, F20, G50, M50, M52, N28, P20, Q2, Q4, R18, S68, U4, U10, V12, V22, W42, C6, D38, G22, A38.

Matting, Door, B42, B50, C40, C54, E26, E32, F20, F36, G50, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22, A38.

Matting, Elevator, B42, B50, C40, C54, E26, F20, F36, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Matting, Floor, B42, B50, C40, C54, E26, F20, F36, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, G22.

Matting, Knob, B42, B50, C40, C54, F20, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, W42, C6, D38, G22.

Matting, Perforated, B42, B50, C40, C54, E26, E32, F20, F36, G30, G50, H8, M50, M52, N28, B20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, G22, A38.

Matting, Pneumatic, B42, E32, H8, P20, R18, U4, U10, C6, G22.

Matting, Pyramid, B42, B50, C54, E26, F20, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, C6, D38, G22.

Matting, Stair, B42, B50, C40, C54, E26, F20, G30, G50, H8, M50, M52, N28, P20, Q2, Q4, R18, R20, S68, U4, U10, V12, C6, D38, G22, A38.

Mechanical Rubber Goods, B42, B50, B72, C14, C40, C54, C64, E22, E26, E32, F20, G30, G50, H8, I12, M50, M52, M66, N8, N28, P20, Q4, R18, R20, R42, S50, S68, T6, U4, U10, V12, V22, W42, C6, D38, W26, G22, C18, A38.

Molded Goods in Customers' Molds, B24, R50, C18.

Molded Mechanical Goods, B72, T16, U10, C18.

Nozzles, A24, B50, C40, R20, S50, S68, T6, U10, C6, D38, G22.

Nuts, Lock, U10, C6.

Oil Well Supplies, U10.

Packers, B72, C40, C54, C64, E22, E26, H8, M50, N28, P20, R18, S50, S68, U4, U10, V12, C6, W10, G22, C18.

Packing, B26, B42, B50, B72, C14, C32, C40, C54, C64, E22, E26, E32, G30, G38, G50, H8, M50, M52, N88, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, P52, W10, G22, C18.

Packing, Boiler Gaskets, B26, B42, B72, C14, C40, C54, C64, E22, E32, G30, G38, G50, J10, M50, M52, N28, T20, Q4, R20, S50, S68, U4, U10, V12, C6, D38, W10, G22.

Packing, Coil, B26, B42, C14, C40, C54, E22, E26, G38, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, W10, G22.

Packing, Gaskets, B26, B42, B72, C14, C40, C54, E22, G30, G38, G50, J10, M50, M52, N28, P20, Q4, R18, R20, S68, U4, U10, V12, W42, C6, D38, W10, G22, C18, A38.

Packing, Oil Well, B26, B42, B72, C14, C40, C54, C64, E22, E26, G30, G38, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S50, S68, T6, U4, U10, V12, C6, D38, W10, G22.

Packing, Radiator Discs, B42, C14, C40, C54, E22, E32, G50, M53, P20, Q4, R20, S50, S68, T6, U4, U10, C6, G22.

Packing, Ring, B26, B42, C14, C40, C54, E22, E26, G38, G50, H8, J10, M50, M52, P20, Q4, R20, S68, T6, U4, U10, W42, C6, D38, G22.

Packing Sets, B26, B42, C14, C40, E22, G38, G50, H8, J10, M52, P20, Q4, R20, S68, U4, U10, W42, C6, G22.

Packing, Sheet, B26, B42, B50, B72, C14, C40, C54, C64, E22, E26, E32, G38, G50, H8, J10, M50, M52, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Packing, Spiral, B26, B42, C14, C40, C54, E26, G30, G38, G50, H8, J10, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, G22.

Pads, Horseshoe, C32, C64, E32, F20, M50, M52, N28, R18, R20, U10, C6, D38, P52, W10, G22, C18.

Pads, Landing, U10, C18.

Pails, U10.

Pipes, Hose, U10.

Pipes, Play, B50, G50, H8, N28, P20, R20, U10, C6, D38, G22.

Platens, Typewriter, B42, G50, N28, R18, S50, U10, V12, C6, G22.

Plugs, Tapered, C54, E22, G50, M52, R18, U10, V12, C6, G22, C18.

Plumbers' Specialties, C40, E22, G50, I12, M50, M52, Q4, S50, S68, U10, V22, C6, D38, W26, W10, G22, C18.

Pulleys, Rubber Faced, R42.

Pyrographic Sets, D6.

Racks and Reels, Hose, U10, A24.

Railroad Supplies, A38, B42, C40, C54, E26, E32, G30, G50, H8, M50, N28, P20, R18, R20, S68, U4, U10, V6, C6, D38, W26, W10, G22.

Rings, A58, B42, B72, C40, C54, C64, E22, E26, F20, G30, G50, I12, M42, M50, M52, N28, R18, R20, S68, T6, U4, U10, V12, D38, P52, W26, G22, C18, C40, S68.

Rings, Asbestos, U10.

Indexed Buyers' Guide to Rubber Products — Continued

Mechanical Rubber Goods—*Continued*

Rings, Beer Keg Washer, B42, B72, C40, C54, C64, E22, E26, F20, G50, H8, M50, M52, N28, R18, R20, S50, S68, T6, U4, U10, C6, C18.
Rings, Brewers, U10.
Rings, Cloth Inserted, B42, C40, C54, E22, F20, G50, H8, M50, M52, N28, P20, R18, R20, S68, U4, U10, V12, C6, D38, G22.
Rings, Combination Hydraulic, U10.
Rings, Coupling Packing, U10.
Rings, Cream Separator, B42, C40, C54, E26, F20, G50, H8, I12, M50, M52, N28, P20, R18, R20, S50, S68, T6, U4, U10, V12, C6, D38, G22.
Rings, Duster, S50, S68, U4, U10, V12, C6, G22.
Rings, Fruit Jar, B50, C80, E26, G50, H8, M50, M52, P38, R18, S68, U4, U10, C6, D38, G22, C18.
Rings, Gage Glass, U10, C18.
Rings, Half Round, U10, C6, G22, C18.
Rings, Hydraulic Press, A38, B42, C32, C40, C54, F20, G50, H8, M50, M52, S68, T6, U4, U10, V12, C6, W26, G22.
Rings, Ice Machine, C40.
Rings, Packing, S68.
Rings, Pipe Coupling, B42, C40, C64, G50, H8, I12, M50, M52, N28, R18, S68, U4, U10, C6, G22, C18, A38.
Rings, Plunger, B42, C40, G38, H8, I12, J10, M50, M52, Q4, R20, S50, S68, T6, U4, U10, C6, G22, C18.
Rings, Rainbow, U10.
Rings, Round Flange, B42, C40 C54, E22, F20, G50, H8, J10, M50, M52, Q4, R18, R20, S68, T6, U4, U10, C6, D38, G22, C18.
Rings, Square Flange, B42, B72, C40, E22, F20, G50, H8, J10, M50, M52, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22, C18.
Rings, Testing, C40, E22, G50, H8, M50, M52, N28, S50, T6, U4, U10, C6, G22, C18.
Rings, Umbrella, D6, F2, M52, S68, U4, U10, C6, D38, G22, C18.
Rollers, Paper Machine, A58, B42, C40, C54, E22, E26, F20, M52, R20, R42, U4, U10, C6, G22.
Rolls, A58, B42, B72, C40, C54, C64, E22, E26, F20, G50, H8, M50, M52, N28, Q4, R20, R42, S50, T6, U4, U10, C6, D38, W10, G22.
Rolls, Covered, A58, B42, B72, C32, C40, C54, C64, E22, E26, E32, F20, G16, G50, H8, M42, M50, M52, N6, N28, Q4, R18, R20, R42, S50, T6, U4, U10, V12, C6, D38, W10, G22.
Rolls, Wringer, A58, B42, C40, C54, E22, F20, G30, G50, M50, M52, Q4, R18, R42, U4, U10, C6, D38, W10, G22, A38.
Rubber, Beet Sugar, C54, E22, H8, M50, M52, R18, R20, S50, U4, U10, C6, W10, G22.
Rubber Casing Head, B42, B72, C54, C64, H8, M50, M52, R18, R20, U4, U10, C6, G22.
Rubber, Channel Sash, B50, B72, C40, C54, C64, B6, F20, H8, M42, M50, M52, N28, Q4, R18, R20, T6, U4, U10, C6, G22, A38.
Rubber, Glazing, B60, C64, B72, F20, H8, M42, M50, M52, Q4, R18, U4, U10, C6, A38.
Rubber Stock, Unvulcanized, U10, A34.
Rubbers, Beer Pump, U10, C18.
Rubbers, Massage, C40, F14, M42, M52, S50, U10, C6, D38, G22.
Rubbers, Shoe Machinery, U4, U10, C6.
Rubbers, Swab, B72, C64, H8, P20, Q4, R18, R20, T6, U4, U10, V12, C6, W10, G22.
Rubbers, Valve, C40.
Rubbers, Whip Socket, H8, M52, U4, U10, C6, G22, C18.
Seats, Post, I12, M50, R18, U4, U10, C6, G22, C18.
Shoes, Horse, U10.
Sleeves, Dredging, B42, B50, C40, C54, C64, E26, G30, G50, H8, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, C6, D38, G22.
Soles, A38, B42, B50, C32, C42, E26, E32, F20, F22, G16, G30, G50, L30, M52, M65, M66, Q2, R18, R20, T2, U4, U10, C6, D38, G22.
Soling, A38, B42, B50, B72, C32, C42, C54, E26, E32, F20, G50, M65, M66, N28, R18, R20, U4, U10, C6, D38, G22.
Solution, Acid, D38.
Solutions, Rubber, R34.
Splicing Compound, B22, B42, B50, C54, H8, M52, N28, M42, S68, U4, U10, C6, D38, G22.
Springs, B42, B72, C40, C54, E22, E26, F20, G50, H8, M50, N28, R18, S50, S68, T6, U4, U10, C6, D38, W26, G22, C40.
Springs, Cylinder Hub, U10.
Springs, Die Stamping, U10.
Springs, Door, B42, C40, C54, C64, F20, H8, M50, R18, S50, S68, U4, U10, C6, W26, G22.
Springs, Extraction, C40.
Sprinklers, Lawn, U10, A24.
Sponge Rubber, B42, F14, H8, M42, M66, R20, S50, S68, T14, U10, C6, G22.
Stamp, Rubber, B42, C40, C64, F20, G50, M42, M50, M66, P20, R18, S50, T14, U10, C6, D38, G22.
Steps, Rubber Covered, U10.
Stopples, C54, C64, D6, F14, F36, H8, M50, M52, R50, S50, U10, C6, G22, C18.
Stopples, Chemical, U10.
Stoppers, Basin and Bath, E22, F36, H8, M42, M50, M52, Q2, Q4, U4, U10, V22, C6, W26, G22, C18, A38.
Stoppers, Beer, M52, U4, U10, C6, G22.
Stoppers, Suction, E22, M50, M52, U4, U10, C6, W26, G22, C18.
Straps, Deckle, B42, R20, S68, U4, U10, C6, D38, G22.
Straps, Loom, Balata, M24.
Stripping, Weather, B42, C40, F20, M50, M52, Q4, R18, U4, U10, C6, D38, G22.
Strips, Casket, U10, C40.
Strips, Sash, B42, B72, C40, F20, M50, R18, U4, U10, C6, G22.
Submarine Diving Apparatus, B42, U10, C6, G22.
Sugar Factories Specialties, B42, B72, C40, C54, E22, G50, H8, M52, P20, R18, S50, S68, U10, C6, M82, W10, G22.
Tanks, Acid Rubber Lined, R42.
Tape, Friction, B22, B50, C40, E22, F22, M52, M66, M42, R20, S68, U10, C6, D38, S54.
Tape, Splicing, B22, B50, C54, E22, M52, M66, M42, R20, S68, U10, C6, D38, S54, G22.
Thread, Rubber, F2, R20, U10, C6, G22.
Tiling, B72, G50, M50, T20, R18, U4, U10, V12, C6, D38, G22.
Tips, Cane, C40, D6, F14, F20, F32, M50, M52, Q4, T16, U10, C6, G22, C18, A38.
Tips, Chair, C40, D6, F14, F20, F32, M50, M52, Q2, Q4, R18, T16, U10, C6, D38, G22, C18, A38.
Tips, Crutch, C40, D6, F14, F20, F32, M50, M52, Q2, Q4, R18, T16, U10, C6, G22, C18, A38.
Tips, Mess Table, C18.
Tissue, Gutta Percha, U10.
Toys, D6, F14, M52, S60, U10, C6, G22.
Treads, Stair, B42, B50, C40, C54, E26, F20, G50, H8, M50, M52, M28, Q2, Q4, R18, U10, V12, C6, D38, G22, A38.
Tubes, Grain Drill, B42, C40, G30, G50, M52, U4, U10, C6, G22.
Tubes, Linotype, U10.
Tubing, R42, B50, B72, C40, C54, C64, D2, D6, E22, E26, E32, F14, F20, F36, G30, G35, G50, H8, I12, M50, M52, M66, N28, Q2, Q4, R18, R20, S68, T6, T16, U4, U10, V12, V22, W42, C6, D38, G22, C18.
Tubing, Braided, R42, C40, E20, E26, H8, M50, M52, S68, T6, U10, W42, C6, D38, G22.
Tubing, Cloth Inserted, B42, B50, C40, C54, D40, E22, E26, E32, G30, G50, H8, M50, M52, N28, P20, Q4, R20, S68, T6, U10, V12, W42, C6, D38, G22.
Tubing, Gas Lamp Connection, C40, C54, D40, E26, E32, F20, G30, H8, M52, Q4, R18, S68, T6, U10, C6, D38, G22, A38.
Tubing, Invalid Chair, B50, E26, F20, H8, R18, U10, C6, D38, G22.
Tubing, Pure Rubber, B42, B50, B72, C40, C54, D6, D40, E20, E22, E26, E32, F2, F14, F20, F36, G30, G50, H8, M52, M66, Q2, Q4, R18, R20, S68, T6, T16, U4, U10, V12, W42, C6, D38, W10, G22, C18.
Tubing, Syringe, B50, B2, B6, E26, F14, F20, F36, G33, G50, H8, M52, M66, Q2, Q4, S68, T6, T16, U4, U10, C6, D38, W10, G22, C18, A34.
Typewriter Platens and Specialties, B42, B50, B72, G50, R18, S50, U10, V12, C6, D38, G22.
Valves, Bibb, U10, C18.
Valves, Hydraulic, B42, C40, F20, G50, M52, N28, P20, Q4, R20, S50, S68, T6, U4, U10, V6, W42, C6, D38, W10, G22.
Valves, Pillow, B42, C64, F20, M52, P20, Q4, S50, S68, T6, U4, U10, V6, C6, G22, C18.
Valves, Pump, A58, B42, B72, C40, C54, C64, E22, E26, E32, F20, G30, G50, H8, J10, M52, N28, P20, Q4, R18, R20, S50, S68, T6, U4, U10, V6, V12, W42, C6, D38, P52, W26, G22, C18, A38.
Valves, Pump, Balata, M24.
Valves, Reducing, B42, F20, G50, P20, Q4, S68, T6, U4, U10, V6, C6, D38, P52, G22.
Vents, Beer, M50, M52, Q4, S50, S68, U10, C6, G22, C18.
Washers, Air Brake, B42, C40, C54, E22, F20, G30, G50, H8, M50, M52, P20, Q4, R18, S50, S68, T6, U4, U10, C6, D38, P52, W26, G22, C18, A38.
Washers, Beer Pump, B42, C40, C54, F20, G50, M52, Q4, R18, S50, S68, T6, U4, U10, C6, D38, W10, G22.
Washers, Bibb, B24, B42, C40, C54, E22, M42, M50, M52, P20, Q4, S50, S68, U4, U10, V22, C6, D38, W10, G22, C18.
Washers, Bottle Stopper, B42, B72, C40, C54, C64, F14, F20, G50, M50, M52, Q4, S68, U4, U10, C6, D, 38, P52, W10, G22.
Washers, Bunghole, B42, B72, C54, F20, G50, M50, M52, R18, S50, S68, T6, U4 U10, C6, P52, W26, W10, G22, C18.
Washers, Cone, B42, C54, M50, M52, S68, U4, U10, V12, C6, W10, G22, C18.
Washers, Disc, B42, C54, E32, M50, M52, Q4, S68, U4, U10, V12, C6, W10, G22, C18.
Washers, Filter, B42, C54, C64, E22, E32, F20, M50, R18, T6, U4, U10, C6, W10, G22.
Washers, Gauge Glass, A58, B42, B72, C40, C54, E22, F20, G30, G50, H8, I12, M50, M52, N28, P20, Q4, R18, R20, S68, T6, U4, U10, V12, W42, C6, D38, W10, G22, C18.
Washers, Seat Hinge, B42, C54, E26, I12, M50, M52, T6, U4, U10, C6, W10, G22, C18.
Washers, Slip Joint, B42, C54, E22, K50, I12, M50, M52, T6, U4, U10, V12, C6, D38, W10, G22, C18.
Washers, Spud, B42, C54, E32, E26, G50, M50, M52, S50, T6, U4, U10, C6, D38, W10, G22, C18.
Washers, Stuffing Box, B42, B72, C40, E22, G38, H8, M50, R18, R20, S50, T6, U4, U10, V12, C6, W10, G22, C18.
Washers, Syphon, B42, E22, E26, F20, G50, M50, M52, Q4, T6, U4, U10, C6, W26, W10, G22, C18.
Washers, Syphon Valve, B42, E23, F20, M50, M52, U4, U10, C6, W26, W10, G22, C18.
Washers, Top Bibb, B42, C40, B23, M50, M52, S68, U4, U10, C6, W10, G22, C18.
Washers, Union, B42, C54, C64, E22, E26, G50, H8, I12, M50, M52, Q4, R18, S68, T6, U4, U10, C6, W10, G22, C18.
Washers, Waste, B42, E22, I12, M50, M52, S68, T6, U4, U10, C6, G22, C18.
Wheels, Brewers, U10.
Wheels, Vulcanite Emery, B42, M50, U10, C6, W10, G22.
Wicking, U10.

Druggists' Sundries

Air Goods, D6, F14, G33, H40, M52, U10, A83, C6, G22.
Aprons, Laboratory, U10, G22, W22.
Aprons, Sanitary, A38, B66, G33, K12, M66, U10, C6, M88, G22, B42.
Aprons, Surgical, A38, D6, G33, H40, K12, U10, C6, G22.
Aprons, Tension, B42.
Aprons, X-Ray, U10.
Atomizers, D6, G33, M52, T16, U10, C6, G22, A34.
Bags, Face, C22, D6, F14, G33, G36, H40, M52, M66, T16, U10, C6, G22, P10.
Bags, Gas, B66, D6, H40, M66, U10, C6, D38, G22.
Bags, Gas Main, D6, H40, M66, U10, C6, G22.
Bags, Injector, D6, M66, U10, C6, G22.
Bags, Ice, B66, C22, D2, F14, G32, G36, H40, L14, M52, T16, U10, C6, G22.
Bags, Sponge, A38, G22, F14.
Bags, Syringe, C22, D2, D6, F14, G33, G36, H40, M52, M66, T14, T16, U10, C6, G22, P10.
Bags, Throat, D2, D6, F14, G33, H40, M52, U10, C6, G22, P10.
Bags, Water, U10, F14.
Balloons, Toy, D6, F14, G46, M66, S60, U10, W14, C6.
Balloons, Toy Advertising, D6, F14, G46, M66, S60, U10, W14, C6.
Bandages, Surgical, D6, G33, H40, T16, U10, C6, G22.
Bands, Chin, D6, F14, M66, S60, U10, C6, G22.
Bands, Elastic, D6, E26, F2, G33, H40, T16, U10, C6, D38, G22.
Bands, Forehead, D6, M66, S60, U10, C6, G22.
Basins, Folding, D6, G33, H40, U10, C6, G22.
Bath Folding Tubs, D6, H40, U10.
Beds, Air, D6, G33, H40, U10, A83, G22.
Beds, Water, D6, G33, H40, U10, C6, G22.
Bibs, Rubber, W22.
Bottles, Horse Medicine, U10.
Bottles, Water, C22, D2, D6, F14, G33, G36, H40, M52, M66, T16, U10, C6, G22, P10, A34.
Bowls, Plaster, W22.
Bulbs, D2, D6, F14, G33, H40, M52, S50, T16, U10, C6, G22, C18, A38.
Bulbs, Atomizer, U10, C18, D2, F14, A34.
Bulbs, Camera, U10, F14.
Bulbs, Furnace, D2, D6, M52, S50, T16, U10, C6, G22, C18.
Bulbs, Pyrography, U10.
Bulbs, Syringe, W22.
Caps, Bathing, B66, C22, D6, F14, G33, H40, M66, U10, C6, G22, P10.
Caps, Ice or Water, C22, D2, D6, F14, G33, G36, H40, M52, M66, T16, U10, C6, G22, P10.
Catheters, D6, F14, H40, L14, M66, T16, U10, C6, G22.
Combs, U10, V24, C6, G22, A34.
Cots, Finger, C22, D6, F14, G33, H7, H40, L14, M66, S60, T16, U10, C6, G22.
Cups, Cupping, D6, U10, C6, G22.
Cups, Polishing, W22.
Curtains, Shower Bath, H40, K12, U10, C6, G22.
Cushions, Ear, C18.
Cushions, Embalming, D6, H40, U10, C6, G22.
Cushions, Heel, L30, C6, G22.
Cushions, Invalid, D2, D6, F14, G33, H40, M66, T16, U10, C6, G22, P10.
Cushions, Operating, D2, D6, F14, G33, H40, U10, C6, G22.
Dam, B66, D2, D6, G33, H40, M66, T14, T16, U10, C6, G22, W22, A34.

Indexed Buyers' Guide to Rubber Products—Continued

Druggists' Sundries—*Continued*

Dilators, D6, M66, U10, **W10,** G22, A34.
Discs, Polishing, W22.
Drains, D6, U10, C6, G22.
Droppers, Medicine, D6, F14, T16, U10, C6, G22.
Druggists' Specialties, D6, F14, G36, H7, H40, M66, R50, S60, T14, U10, C6, G22.
Druggists' Sundries, C22, D2, D6, F14, H7, H40, M66, R50, T14, U10, C6, G22.
Fittings, Nursing Bottle, D6, T16, U10, C6, G22.
Garments, Reducing, D6.
Gloves, Acid, C22, D6, F14, G33, H40, L14, M66, **S60, U10, C6, G22, A38.**
Gloves, Household, C22, D2, D6, F14, **G33,** H40, **L14, M66, S60,** U10, C6, G22.
Gloves, Pure Gum, C22, D2, D6, F14, G33, H7, H40, L14, M66, S60, U10, C6, G22.
Gloves, Surgical, C22, D2, D6, F14, G33, H7, H40, L14, M66, S60, U10, C6, G22.
Gloves, X-Ray, U10.
Gum, Bandage, B66, D6, G33, H40, T14, T16, U10, C6, G22.
Hard Rubber Goods, D6, S68, T14, T16, U10, C6, W10, **G22, A38,** A34.
Signatures, Orthodontic, W22.
Masks, Face, C22, D6, F14, M66, S60, U10, C6, G22.
Materials, Auto Top, B50, H40, U10, C6, G22.
Mats, H40, U10, C6, **D38, G22.**
Mattresses, Air, D6, G33, H40, U10, **A33,** C6, G22.
Mittens, Acid, C22, D6, F14, G33, H40, S60, U10, C6, **G22.**
Mittens, Motormen's, D6, G33, H40, S60, U10, C6.
Mittens, Tanners', C22, D6, F14, G33, H40, S60, U10, C6.
Nipples, D2, D6, F14, C46, L14, H66, R50, S50, S60, T16, U10, C6, G22.
Packing, Dental Vulcanizer, W22.
Pads, Finger, D6, F2, **S60,** U10, C6, G22.
Pads, Truss, D6.
Pans, Bed, D6, G33, **H40, U10 C6,** G22.
Pessaries, D6, F14, **M66, T16,** U10, C6, G22, A34.
Pipes and Fittings, Syringe, D2, D6, F14, G33, G36, H40, M66, T14, T16, U10, C6, G22, A34.
Paints, Polishing, W22.
Pouches, Colostomy, U10, C6, G22.
Pouches, Tobacco, B66, D2, D6, T16, U10, C6, **G22, P10.**
Props, Mouth, W22.
Protectors, Bunion, L30.
Pumps, Breast, D2, D6, F14, G33, M55, M66, T14, **T16, U10, C6,** G22, C18, A34.
Respirators, D6, M66, U10, C6. G22.
Rings, Nursery, D6, F2, G46, R50, U10, C6, G22.
Seats, Toilet, B68.
Sheeting, Hospital, B66, D6, G33, H40, K12, M66, **U10, C6, M88,** G22.
Shields, Breast, D6, F14, **U10, C6,** G22.
Shields Eye, C18.
Shields, Nipple, D6, F14, **U10, C6,** G22.
Shields, X-Ray, B72.
Silencers, Pail, D6, U10, C6, G22.
Solutions, Rubber, R34.
Sponge Rubber Goods, F16.
Sponges, F14, G33, L30, M66, U10, C6, G22, F16.
Sprays, Bath, H40, H52, **U10, C6, G22.**
Stalls, Finger, D6, F14, G33, H7, H40, M66, S60, U10, C6, G22.
Stalls, Thumb, D6, F14, G33, H7, H40, M66, S60, U10, C6, G22.
Stoppers, D6, F14, H40, M50, U10, C6, W10, G22, **A38.**
Stoppers, Laboratory, D6, F14, **M50,** M52, R50, **U10, C6, W10. G22.**
Stopples, D6, F14, H40, M52, R50, U10, C6, G22, A38.
Strips, Coffin, C40.
Strips, Separating, W22.
Syringes, Bulb, D2, D6, F14, G33, H40, M52, T14, **T16, U10, C6,** G22, C18, A34.
Syringes, Bulb Combination, D6, **G33,** H40, M52, T14, **U10, C6,** G22, A34.
Syringe Combination Sets, C22, D2, D6, F14, G33, G36, H40, M52, M60, **U10, C6, G22, P10,** A34.
Syringes, Ear, D6, F14, G33, M52, M66, T14, T16, U10, C6, G22, A34.
Syringes, Embalming, U10, **A34.**
Syringes, Ear and Ulcer, D2, D6, F14, G33, M52, M66, T14, T16, U10, C6, G22, **C18, A34.**
Syringe Fittings, D2, D6, F14, G33, G36, H40, M66, T14, T16, **U10, C6, G22, A34.**
Syringes, Fountain, C22, D2, D6, F14, G33, G36, H40, M52, M66, T14, T16, U10, C6, **G22, P10,** A34.
Syringes, Horse, U10, A34.
Syringes, Infant, D2, D6, F14, G33, H40, M52, M66, T14, T16, U10, C6, G22, A34.
Syringes, Water Bottle, C22, D2, D6, F14, G33, G36, H40, M52, M66, T14, T16, U10, C6, G22, P10, A34.
Tips, Crutch, D6, F14, M52, T16, U10, C6, G22, **C18, A38.**
Tourniquets, D6, H40, T16, **U10,** C6, G22.
Tubes, Colon, D6, F14, H40, L14, M66, T16, U10, C6, G22.
Tubes, Dental, D6, M66, U10, C6, G22.
Tubes, Irrigating, D6, H40, L14, M66, U10, C6, G22, **F14.**
Tubes, Nasal Feeding, D6, U10, C6, G22.
Tubes, Rectal, D6, F14, H40, L14, M66, T16, **U10, C6, G22.**
Tubes, Stomach, D6, F14, H40, L14, **M66, T16, U10, C6, G22.**
Tubes, Surgical, D6, H40, L14, M66, **S60, U10, C6, G22, C18.**
Tubing, B50, D2, D6, E26, F2, F14, G33, G36, H8, H40, L14, **M50,** M52, M66, Q2, T16, U4, U10, C6, **D38,** W10, **G22,** C18, A34.
Tubing, Gas and Air, W22.
Tubing, Irrigating, F14.
Tubing, Orthodontic, W22.
Urinals, D6, H40, M52, T16, **U10,** C6, G22.

Footwear

Arctics, B18, B52, C52, **F22, G32,** G24, G50, H48, M72, **U10,** C6, G22, C66.
Boots, B18, B52, C52, **F22, G32,** G34, G50, H48, M72, U10, **A66,** C6, D38, M82, G22, **C66, M82.**
Boots, Firemen's, B18, **B52,** C52, F22, G32, G34, G50, H48, U10, C6, D38, G22.
Findings, E16, C6, G22.
Heels, B18, B50, B52, **D36, E26,** E32, F20, F22, **F32,** G10, **G30,** G50, L30, M52, M66, P4, **S74,** T2, C6, D38, P52, G22.
Overshoes, B18, B52, C52, **F22,** G32, G34, G50, H48, M72, U10, C6, G22, C66.
Pants, Baptismal, U10.
Pants, Wading, G33, U10, C6.
Shoes, B18, B52, C52, **F22, G34,** G50, H48, M72, U10, **A66, C6,** G22, C66, A65.
Shoes, Outing, A66, C66.
Shoes, Tennis, B18, B52, C52, **G32,** G34, G50, H48, U10, **A66, C6,** C66.
Soles, B18, B50, **D36, E26, F20,** F22, **F32,** G10, G30, G50, **L30,** M46, M52, M66, P4, Q2, T2, T4, **U10, C6,** D38, H56, P52, G22.
Soling, B50, B52, **F20, F32,** G10, G24, G50, M66, P4, Q2, U10, C6, D38, H56, P52, G22.

Woven Elastic Fabrics

Cord, R20, D38, G22.
Thread, R20, U10, E12, G22.
Webbing, R20, G22.
Wire, Rubber Covered, B22.

Stationers' Supplies

Bands, Elastic, D6, E26, F2, H40, T16, U10, C6, E12, G22.
Erasers, F2, R22, **A38.**
Pens, Fountain, A13, C58, P6, W8, G22, A34.
Sacs, Fountain Pen, E22.
Sponge Rubber, Cup, M66.
Tips, Pencil, F2.

Tires and Accessories

Aprons, Automobile, B50, G50, U10, C6, G22.
Bands, Retread, M74.
Boots, A40.
Bumpers, Automobile, A33, C32, C40, C64, D36, **F20,** F22, G30, G50, I12, M42, M50, **M52, N28,** Q4, R18, S50, **T6, U4,** U10, V12, V22, C6, **D38,** G22, **A38.**
Bumpers, Truck, B42, **C40,** C64, D36, E32, F22, **G30,** G50, **M42,** M50, M52, **N28, Q4, R18,** S50, T6, U4, U10, V12, **D38,** G22, A38.
Cement, Bicycle, V4.
Cement, Rubber, A40, **B42,** B66, D40, E16, E32, F14, **F20, F22,** F26, G10, **G30,** G48, **G50, H48,** H50, L14, **B50, M66, M74, P46,** S37, U2, U10, V4, V12, B56, C6, D38, H56, G22.
Covers, Retread, B56.
K12, C6, G22.
Fabrics, Auto Top, B50, E26, H40,
Fillers, Rim, D38.
Filler, Tread, V4.
Flaps, M74, C66.
Grips, Bicycle, B66, C64, F20, F22, M42, M52, Q4, R18, U10, C6, D38, G22, A38.
Gums, Repair, H56.
Hose, Auto Pump, B50, C40, C64, D40, E20, F22, **G30, G50,** H8, M50, M52, Q4, **S68, T6,** U4, U10, V12, W42, C6, G22.
Hose, Radiator, B42, C32, **C40,** C54, C64, D40, E20, E26, **E32,** F20, G30, G50, H8, I12, M42, M50, M52, **N28,** Q4, **S68,** T6, U4, U10, V12, W42, C6, D38, G22, A38.
Mats, Automobile, B42, C40, C54, E32, F20, F22, G50, H8, **M42,** M50, M52, N28, Q4, S68, U4, U10, C6, D38, W10, G22, A38.
Materials, Repair, D38.
Paint, Tire, D38.
Patches, A40, F40, G10, M74, B58, G22, H56, D38, K16.
Protectors, Tube, D38.
Reliners, A40, F20, G10, M74.
Repair Kits, D40, **F20,** F22, G10, L14, M66, S68, U10, V12, B56, C6, D38, G22, A38.
Repair Stock, A40, C64, E26, F20, F22, F26, G10, G30, G48, G50, H8, L14, M42, M66, **M72,** P48, S76, T6, U10, V12, B56, B58, C6, D38, K3, **S8, G22, A38.**
Rims, Wheel, D38, G22.
Rubbers, Pedal, C32, **C64, E26,** F20, F22, G50, M42, **M52,** R18, T6, U4, U10, C6, W10, G22, A38.
Rubbers, Windshield, D38.
Strips, Wind Shield, B50, B72, C32, C40, C64, D36, **D40, E26,** E32, F22, **G30, G50, H8,** M42, M52, R18, T6, U4, U10, V12, C6, D38, G22, **A38.**
Tape, Tire Repair, B50, C40, F22, F10, J10, M52, **M66, N42, S68,** U10, V4, C6, D38, G22.
Tires, Airless, S76, U4, U10, C6, G22.
Tires, Airplane, C64, D40, F22, G10, G50, U4, U10, **C6,** D38, G22.
Tires, Automobile, Pneumatic, A14, A28, A40, B8, B32, B68, C32, C54, C64, C80, D16, D32, D40, E18, E26, **F20, F22, F26,** G10, G16, G30, G36, G42, **G48,** G50, H8, H12, H24, **H48,** H50, I16, I12, L10, L14, **M6, M10,** M16, M36, M42, M64, **M65,** M66, M72, N16, N24, **N28,** P22, P48, Q4, R42, **S50, S56,** S76, T4, T6, T16, U4, **U10, V22,** W36, B4, B56, B58, C6, D38, H56, M10, M26, **S8,** G22, C66, P10, C75, D40, B73.
Tires, Automobiles, Cushion, F22, S76, U4, U10, C6, G22.
Tires, Baby Carriage, B8, B50, B72, C40, C64, **E32, F22,** G30, G48, G50, H8, I12, **M52,** N28, Q2, Q4, R18, **S68,** U4, U10, V22, C6, D38, **W10, G22, A38.**
Tires, Bicycle, C64, F20, F22, F26, G30, I12, L14, U4, U10, C6, D38, G22.
Tires, Carpet Sweeper, B72, C32, C40, C64, E26, **G50, H8,** Q4, S50, S68, T6, N4, U10, C6, D38, G22, A38.
Tires, Carriage, F22, G30, G50, U4, U10, C6, D38, G22.
Tires, Motorcycle, A40, B8, C64, D40, E2, F20, **F22, F26,** G30, M10, P32, P48, S76, U4, U10, B4, B58, C6, **D38, M10, G32,** P10.
Tires, Truck, Solid, B8, B72, C40, F22, G16, G30, G50, **H48,** H50, M10, P46, R42, S76, U4, U10, B58, C6, D38, M10, G22.
Tubing Tire Inflation, B42, C40, C64, D40, F22, F26, G30, G50, H8, M50, M52, Q4, **R42,** T6, U4, U10, V12, C6, D38, G22.
Tubes, Inner, A14, A28, **A40, A63,** B8, B32, B68, C32, **C54,** C64, C80, D16, D32, **D40, E18, E26,** E32, F20, F22, **F26,** G10, G16, G30, G36, G42, **G48, G50,** H8, H24, H48, H50, I16, **I12,** L10, L14, M10, M16, **M36, M42,** M64, M65, M66, **M72,** N16, N24, N28, P20, **P28, P32, P48,** Q4, S28, S50, **S56,** S74, **S76,** T4, T6, T16, U4, U10, **V12, V22,** W36, B56, B58, C6, D38, H56, M10, M26, **S8, G22, C66,** P10, C75, K16, V20.

Proofed and Coated Fabrics and Products

Air Goods, D6, **G33, H40, N10, C6,** G22.
Aprons, Rubber, A42, A88, B50, B66, C44, D6, **G33, G50,** H40, K12, M66, U10, C6, D38, M88, G22, B42.
Bags, Sleeping, A83.
Balloons, Military, A42, B62, U10, C6, G22.
Belts, Swimming, H40, U10, C6.
Bibs, Barbers, A33, B66, D6, M66, U10, C6.
Blankets, Army, A42, B62, C36, C44, F36, G33, G50, H40, **K12,** U10, C6, D38, G22.
Blankets Camp, A42, B66, C36, C44, F36, G33, G50, H40, **K12,** U10, C6, D38, G22.
Blankets, Horse, A42, **C44,** H40, K12, U10, C6, D38, M88, G22.
Capes, Rain, F36, A42, C36, C44, H40, K12, U10, C6, G22.
Cloth, Airplane, A42, B62, H40, K12, U10, C6, G22.
Cloth Backing, C44.
Cloth, Bellows, A42, A88, B50, B66, C36, C44, G50, H40, **K12,** U10, C6, G22.
Cloth Camera, C36, C44, H40, U10, C6, G22.
Cloth, Carriage, A42, B50, C44, H40, U10, C6, D38, G22.
Cloth, Rubber, A42, B50, B62, B66, C36, C44, F36, H40, **K12, S37,** U10, C6, M88, G22.
Cloth, Shoe Covering, C44, M88.
Cloth, Stay, C44.
Cloth X-Ray, U10, G22.
Clothing, Rubber, A42, C36, C44, F36, G33, H40, **K12, M46,** U10, A66, M88, G22.
Coats Firemen's, A42, C36, C44, F36, G33, H40, K12, **U10,** C6, G22.
Collars, Swimming, C44, G33, H40, U10, C6, G22.
Covers, Merchandise, F36.
Curtains, Bath, A33, B66, F36, H40, U10, C6, G22.

Cushions, D6, F14, H40, U10, **A33,** C6, G22.
Diapers, A33, B66, D6, H40, M66, U10, C6, G22.
Diving Apparatus, H40, U10, C6, G22.
Fabrics, Auto Top, A42, A33, B50, B62, H40, K12, U10, C6.
Fabrics Coated and Proofed, A40, A42, A33, B50, B62, H40, K12, S37,, U10, C6, D33, M33, G22.
Fabrics, Elastic, H40, U10, C6.
Fabrics, Proofed, A42, A33, B62, F36, H40, K12, U10, C6, D33, G22.
Fibre, Toplifting, Q2.
Gloves, Driving, U10.
Innersoles, Gum, Canvas Coated, C44.
Leggins, G33, H40, A42, U10, C6.
Life-Preservers, A42, D6, G33, H40, U10, A33, C6, G22.
Mackintoshes, A42, B62, F36, G33, H40, K12, U10, C6, G22, B42.
Material, Leggings, U10.
Pillows, Army Camp, D6.
Ponchos, A42, A33, B50, B62, F36, G33, K12, U10, C6, G22.
Raincoats, Cravenette, A42.
Sheeting, Hospital, A33, B50, B66, D6, F36, G33, K12, U10, C6, D33, M33, G22.
Shields, Dress, B66, C6, M33.

Electrical Goods

Automobile Wire and Cables, B22, H26, N42, R26.
Bushings, Lamp Socket, J10, N42, G22.
Cables, Aerial, A34, B22, D20, E19, I12, N42, S2, G22, H26.
Cables, Armored, A34, B22, E19, I12, N42, S2, G22, H26.
Cables, Insulated, A34, B22, B52, D20, E19, I12, N42, P36, R26, S2, G22, H26.
Cables, Lead Coated, A34, E19, I12, N42, S2, G22, H26.
Cables, Rubber Covered, B22, H26.
Cables, Submarine, A34, D20, E19, I12, N42, S2, G22, H26.
Cables, Underground, A34, D20, E19, I12, N42, S2, G22, H26.
Couplings, Flexible Insulated, R42.
Gloves, Electricians, F14, G33, N42, S60, C6, G22.
Hard Rubber, Electrical, J10, N42, S68, T14, V24, D33, G22, A33, A34.
Insulating Material, D20, J10, L12, M52, N42, R42, T14, V22, G22, A33, A34.
Jars, Battery, B68.
Mittens, Electricians', C22.
Pliers, Insulated, J10, N42, R42, S68, V22, A34, A38.
Screw Drivers, Insulated, J10, N42, R42, S68, G22.
Sleeves, Electricians', C22.
Splicing Compounds, B22, B50, J10, N28, N42, S2, S68, C6, D33, G22.
Stools, Electricians', C22.
Tape, Electrical, B22, B50, E22, J10, M52, N42, S2, S68, C6, D33.
Wire, Armored, A34, B22, D20, I12, N42, S2, G22, H26.
Wire, Insulated, A4, A8, A34, B22, B52, D20, I12, N42, P36, R26, S2, G22, H26.
Wire, Lead Covered, A34, I12, N42, S2, G22, H26.
Wrappings, Cable Insulated, B50.

Sporting Goods

Bags, Punching, D6, S33, U10, C6, G22, P10.
Balloons, Toy, M89.
Balls, Basket, M89.
Balls, Bat, F14, S33, U10, C6, G22.
Balls, Bowling, B72, B68, A34.
Balls, Foot, H40, S33, U10, C6, G22, M89.
Balls, Golf, S33, S42, U10, D33, G22.
Balls, Hand, U10.
Balls Inflated, F14, S33, U10, C6, G22.
Balls, Play, G46.
Balls, Polo, U10.
Balls, Rubber, D33, G22.
Balls, Solid, E32, F14, S33, U10, C6, G22.
Balls, Tennis, S33, U10, C6, G22.
Bladders, Association Ball, U10, G22.
Bladders, Basket Ball, U10, G22, M89.
Bladders, Football, D6, M66, S33, T16, U10, C6, G22, P10.
Bladders, Punching Bag, M66, G22.
Bladders, Volley, U10.
Centers, Baseball, S33, S50, T16, U10, G22.
Chips, Poker, U10, C6, G22.
Plates, Baseball Home, S33, U10, G22, A33.
Plates, Baseball Pitcher, S33, U10, G22, A33.
Protectors, Baseball Body, H40, M52, S33, T16, N10, G22.
Quoits, Rubber, E22.
Shoes, M89.
Tees, Golf, S50, U10, D33, G22.

Hard Rubber Goods

Automobile Parts, E32, N42, T14, N10, G22, A34.
Barrels, Fountain Pen, U10, G22, A34.
Bits, Pipe, T14, U10, G22, A34.
Caps, Fountain Pen, E32, U10, G22, A34.
Caps, Radiator, U10, G22, A33, A34.
Cases, Thermometer, U10, G22, A34.
Combs, A34.
Covers, Battery, U10, W10, G22, A33, A34.
Discs, Water Meter, S68, U10, G22, A34.
Ebonite, T14, U10, G22, A33, A34.
Electrical Goods, S68, T14, U10, G22, A34.
Feeds, Fountain Pen, U10, G22, A34.
Grips, Pistol, U10, G22, A34.
Handles, U10, G22, A34.
Jars, Battery, B68, N42, U10, W10, G22, A33, A34.
Parts, Battery, U10, G22, A33, A34.
Parts, Internal, U10, G22, A34.
Pipes, T16, U10, G22, A34.
Plates, Gun Butt, U10, G22, A34.
Rods, S68, U10, G22, A33, A34.
Scale, Razor, T14, U10, G22, A34.
Separators, Battery, N42, U10, G22, A34.
Sheet, N42, S68, U10, G22, A33, A34.
Specialties, Industrial, U10, W10, G22, A34.
Spiders, Steering, U10, G22, A34.
Stock, Fountain Pen, U10, G22, A34.
Stocks, Hard Rubber, W22, A34.
Syringe Fittings, D6, F14, H40, T14, T16, U10, G22, A34.
Syringes, T16, U10, G22, A34.
Tubing, H8, U10, G22, A34.
Vents, Battery, U10, G22, A33, A34.

Alphabetical List of Rubber Manufacturers

THE RUBBER AGE AND TIRE NEWS will furnish information and addresses of all companies listed below. Names of advertisers in this issue are printed in heavy face type.

A 2—A. & A. Rubber Co.
A 4—A. A. Wire Co., Inc.
A 5—Achilles Rubber Co.
A 6—Acme Rubber Mfg. Co.
A 8—Acorn Insulated Wire Co.
A 10—Advance Rubber Co.
A 12—Aetna Rubber Co.
A 13—Aiken-Lambert Co.
A 14—Ajax Rubber Co., Inc.
A 16—Akron Rubber Works.
A 18—Akron Tire Co., Inc.
A 20—Alden Rubber Co.
A 22—Allcock Mfg. Co.
A 24—Allen, W. D., Mfg. Co.
A 26—Alliance Rubber Co.
A 28—Amazon Rubber Co.
A 30—American Asbestos Co.
A 32—American Electrical Works.
A 34—American Hard Rubber Co.
A 36—American Lead Pencil Co.
A 38—American Para Rubber Co.
A 40—American Rubber & Tire Co.
A 42—American Rubber Co.
A 44—American Rubber Fabric Co.
A 46—American Rubber Mfg. Co.
A 48—American Rubber Mfg. Co. of N. J.
A 50—American Steam Packing Co.
A 52—American Steel & Wire Co.
A 54—American Tire Co.
A 56—American Tire Co.
A 58—American Wringer Co.
A 60—Anchor Packing Co.
A 62—Anderson, L. M., Co.
A 64—Anderson Rubber Works.
A 65—Apsley Rubber Co.
A 66—Archer Rubber Co.
A 68—Armstrong Rubber Co., Inc.
A 70—Asbestos Fibre Spinning Co.
A 72—Asbestos & Rubber Works of America.
A 74—Asbestos & Rubber Works of New Jersey.
A 76—Asbestos Textile Co., Inc.
A 78—Aseptic Products Co.
A 80—Ash, Claudius, Sons & Co., Ltd.
A 82—Astoria Wire Co.
A 83—Athol Mfg. Co.
A 84—Atlantic Insulated Wire & Cable Co.
A 86—Atlantic Mfg. Co.
A 88—Atlantic Rubber Co.
A 90—Atlas Auto Supply Co.
A 92—Augustine, W. B.
A 94—Avon Sole Co.

B 4—Baltimore Rubber Tire Mfg. Co., Inc.
B 6—Banigan Rubber Co.
B 8—Batavia Rubber Co.
B 10—Bauer & Black.
B 12—Baumann Rubber Co.
B 14—Bay State Insulated Wire & Cable Co.
B 16—Beacon Rubber Mfg. Co.
B 18—Beacon Falls Rubber Shoe Co.
B 20—Behrend & Rothschild.
B 22—Belden Mfg. Co.
B 24—Bell, Andrew, Estate of.
B 26—Belmont Packing & Rubber Co.
B 28—Berlin Rubber Mfg. Co.
B 30—BeSaw Tire & Rubber Co.
B 32—Bergougnan Tire Corp.
B 34—Bishop Gutta Percha Co.
B 36—Blake, Whitney Co.
B 38—Blakesley Novelty Co.
B 39—Boone Tire & Rubber Co.
B 40—Boonton Rubber Mfg. Co.
B 42—Boston Belting Co.
B 44—Boston Blacking Co.
B 46—Boston Insulated Wire & Cable Co.
B 48—Boston Rubber Shoe Co.
B 50—Boston Woven Hose & Rubber Co.
B 52—Bourn Rubber Co.
B 54—Bowers Rubber Works.
B 56—Bowling Green Rubber Co.
B 58—Braender Rubber & Tire Co.
B 60—Braintree Rubber Cement Co.
B 73—Brieton Mfg. Co.
B 62—British-American Mfg. Co.
B 64—Brock, A. S., Rubber Co.
B 66—Brooklyn Shield & Rubber Co.
B 68—Brunswick - Balke - Collender Co.
B 70—Bucyrus Rubber Co.
B 72—Buffalo Weaving & Belting Co.

C 2—C. C. C. Fire Hose Co.
C 3—Cambridge Rubber Co.
C 4—Canada Wire & Cable Co., Ltd.
C 6—Canadian Consolidated Rubber Co., Ltd.
C 8—Canadian General Electric Co., Ltd.
C 10—Canadian Rubber Company of Montreal, Ltd.
C 12—Canadian Top Co., Ltd.
C 14—Cancos Mfg. Co.
C 16—Candee, L., & Co.

C 18—Canfield, H. O., Co. See Advertisement on Page 612.

C 20—Canfield Rubber Co.
C 22—Canton Rubber Co.
C 24—Carborundum Co.
C 25—Carlisle Cord Tire Co.
C 26—Carolina Puncture Proof Tubing Co.
C 28—Carr, F. S., Co.
C 30—Centaur Rubber & Tire Co., Inc.
C 32—Century Rubber Works.
C 34—Chemical Rubber Co.
C 36—Chicago Rubber Clothing Co.
C 38—Cigol, F. A., Rubber Co.
C 40—Cincinnati Rubber Mfg. Co.
C 42—Clark Rubber Mfg. Co.
C 44—Clifton Mfg. Co.
C 46—Collyer Insulated Wire Co.
C 48—Colorado Tire & Leather Co.
C 50—Columbia Tire & Rubber Co.
C 52—Columbus Rubber Co. of Montreal, Ltd.
C 54—Combination Rubber Mfg. Co.
C 56—Community Rubber Co.
C 58—Conklin Pen Mfg. Co.
C 60—Conquerer Rubber Cement Co.
C 62—Consolidated Hoof Pad Co.
C 64—Continental Rubber Works.
C 66—Converse Rubber Shoe Co.
C 68—Cortland Tire & Rubber Co.
C 70—Craig Dental Mfg. Co.
C 72—Crandall Packing Co.
C 74—Crescent Insulated Wire & Cable Co.
C 75—Crown Tire and Rubber Co.
C 76—Cummer-Dowswell, Ltd.
C 78—Cummings, G. R., & Co.
C 80—Cuppies Co.
C 82—Cutten & Foster.
D 2—Davidson Rubber Co.
D 4—Davis-Fry Mfg. Co.
D 6—Davol Rubber Co.
D 8—Day, H. P. & E., Inc.
D 10—Dayton Rubber Mfg. Co.
D 12—Dealers Steam Packing Co.
D 14—Deane Plaster Co.
D 16—Delion Tire & Rubber Co.
D 18—De Silva Rubber Co., Inc.
D 20—Detroit Insulated Wire Co.
D 22—Dick, R. & J., Ltd.
D 24—Dixon, Joseph, Crucible Co.
D 26—Doherty, Eugene, Rubber Works, Inc.
D 28—Dominion Rubber Co., Ltd.
D 30—Dominion Tire Co., Ltd.
D 32—Dreadnaught Tire & Rubber Co.
D 34—Dry Climate Tire Mfg. Co.
D 36—Dryden Rubber Co.
D 38—Dunlop Tire & Rubber Goods Co., Ltd.
D 40—Dural Rubber Corp.

E 2—Eagle Pencil Co.
E 4—Eagle Rubber Co.
E 6—Eagle Rubber Cement Co.
E 8—Eastern Electric Cable Co.
E 10—Eastern Rubber Co.
E 12—Easthampton Rubber Thread Co.
E 14—East Palestine Rubber Co.
E 16—Eclipse Cement & Blacking Co.
E 18—Ehman Tire & Rubber Co.
E 19—Electric Cable Co.
E 20—Electric Hose & Rubber Co.
E 22—Elkhart Rubber Works.
E 24—Ellis Cement Co.
E 26—Empire Rubber & Tire Co.
E 28—Endura Mfg. Co.
E 30—Eudurance Tire & Rubber Co.

E 32—Essex Rubber Co., Inc. See Advertisement on Page 577.

E 34—Eureka Cement Co.
E 36—Eureka Fire Hose Mfg. Co.
E 38—Eureka Packing Co.
E 40—Eureka Rubber Mfg. Co.
E 42—Excello Raincoat Co.

F 2—Faber, A. W.
F 4—Faber, Eberhard, Rubber Co.
F 6—Fabric Fire Hose Co.
F 8—Fairfield Rubber Co.
F 10—Falls Rubber Co.

Alphabetical List of Rubber Manufacturers—Continued

F 12—Falls Novelty Co.
F 14—Faultless Rubber Co.
F 16—Featheredge Rubber Co.
F 18—Federal Asbestos Co.
F 20—Federal Rubber Co.
F 22—Firestone Tire & Rubber Co.
F 24—Fisk, Ltd.
F 26—Fisk Rubber Co. of New York.
F 28—Flexible Rubber Goods Co.
F 30—Ford Motor Co.
F 32—Foster Rubber Co.
F 34—Franche, C. E. Co.
F 36—Franklin Rubber Co.

G 2—G. & J. Tire Co.
G 4—Garlock Packing Co.
G 6—General Asbestos & Rubber Co.
G 8—General Electric Co.
G 10—General Tire & Rubber Co.
G 12—Giant Tire & Rubber Co.
G 14—Gibney Tire & Rubber Co.
G 16—Gillette Rubber Co.
G 18—Globe Rubber Co.
G 20—Globe Rubber Tire Mfg. Co.
G 22—Goodrich Rubber Co., The B. F.
G 24—Goodyear Rubber Co.
G 26—Goodyear Rubber Insulating Co.
G 28—Goodyear Tire & Rubber Co.
G 30—Goodyear Tire & Rubber Co. of Canada, Ltd.
G 32—Goodyear's India Rubber Glove Mfg. Co.
G 33—Goodyear's India Rubber Selling Co.
G 34—Goodyear's Metallic Rubber Shoe Co.
G 36—Gordon Tire & Rubber Co.
G 38—Gould Packing Co.
G 40—Granby Rubber Co., Ltd.
G 42—Great Eastern Rubber Co.
G 44—Greensburg Tire & Rubber Co.
G 46—Gregory Rubber Co.
G 48—Gryphon Tire & Rubber Co.
G 50—Gutta Percha & Rubber, Ltd.
G 52—Gutta Percha & Rubber Mfg. Co.

H 2—Habirshaw Electric Cable Co.
H 4—Hainsburg, N. H. & Co.
H 6—Hale, Alfred Rubber Co.
H 7—Halifax Rubber Co.
H 8—Hamilton Rubber Mfg. Co.
H 10—Hanover Rubber Co.
H 12—Hardman Tire & Rubber Co.
H 14—Hartford Rubber Works Co.
H 16—Hardright Co.
H 20—Hatch, Henry C.
H 22—Hauthaway & Sons, Inc.
H 24—Hawkeye Tire and Rubber Co.
H 26—Hazard Mfg. Co.
H 28—Hazen-Brown Co.
H 30—Heath, Edmund F. & Son.
H 32—Hendler, Jesse.
H 34—Hendrie, W. C. Rubber Co.
H 36—Hewitt Rubber Co.

H 40—Hodgman Rubber Co. See Advertisement on Page 575.

H 42—Hollingshead, R. M.
H 44—Holmes Packing & Supply Co.
H 46—Home Rubber Co.
H 48—Hood Rubber Co.
H 50—Hood Tire Co.
H 52—Hosmer, G. A. Co.
H 54—Howe-Baumann Balloon Co.
H 56—Howe Rubber Co.
H 58—Huntington Tire & Rubber Co.
H 60—Hygienic Rubber Works.

I 2—Ideal Rubber Co.
I 4—Imperial Belting Co.
I 6—Independent Rubber Co., Ltd.
I 8—India Rubber Co.
I 10—Indian Rubber Mfg. Co., Inc.
I 12—Indiana Rubber & Insulated Wire Co.
I 14—International Rubber Co.
I 16—International India Rubber Corp.
I 18—Invincible Tire Co.

J 2—Jackson-Eno Rubber Co.
J 4—Jenkins Rubber Co.
J 6—Johnson, Henry Co.
J 8—Johnson & Johnson.
J 10—Johns-Manville, H. W. Co.
J 12—Johns-Pratt Co.

K 2—Kansas City Rubber & Tire Co.
K 3—Kanzee Tire Co., Ltd.
K 4—Kaufman Rubber Co., Ltd.
K 6—Keasbey & Mattison Co.
K 8—Keaton Tire & Rubber Co.
K 10—Kelly-Springfield Tire Co.
K 11—Kendall Tire & Rubber Co.
K 12—Kenyon, C. Co.
K 14—Kerite Insulated Wire & Cable Co.
K 16—Keystone Rubber Mfg. Co., Inc.
K 18—Killion Rubber Co.
K 20—King Rubber Co.
K 22—Kleinert, I. B. Rubber Co.
K 24—Knight Tire & Rubber Co.
K 26—Kokomo Rubber Co.
K 28—Korber Rubber Mfg. Co.

L 2—L. & M. Rubber Co.
L 4—La Crosse Rubber Mills Co.
L 6—La Favorite Rubber Mfg. Co.
L 8—Lambertville Rubber Co.
L 9—Longwear Rubber Co.
L 10—Lancaster Tire & Rubber Co.
L 12—Laurel Company.
L 14—Lee Tire & Rubber Co.
L 16—Lion Tire & Rubber Corp.
L 18—Lincoln Rubber Co.
L 19—Longwear Rubber Co.
L 20—Lovell Mfg. Co.
L 22—Lowell Insulated Wire Co.
L 24—Lubron Co.
L 26—Luzerene Rubber Co.
L 28—Lycoming Rubber Co.
L 30—Lynn Rubber Mfg. Co

M 2—McClurg Rubber Co.
M 4—McCormick, E. J. Rubber Co.
M 6—McCreary Tire & Rubber Co.
M 8—McCue & Pierce.
M 10—McGraw Tire & Rubber Co.
M 12—McIlroy Belting & Hose Co.
M 14—McLean Tire & Rubber Co.
M 16—McNaull Tire Co.
M 18—McTernen Rubber Mfg. Co.
M 20—Maguire Rubber Co.
M 22—Manhattan Rubber Mfg. Co.
M 24—Manheim Mfg. & Belting Co.
M 26—Mansfield Tire & Rubber Co.
M 28—Maple Leaf Rubber Co.
M 30—Marathon Tire & Rubber Co.
M 32—Marathon Tire & Rubber Co., Ltd.
M 34—Marion Insulated Wire & Rubber Co.
M 36—Marion Tire & Rubber Co.
M 38—Mason Tire & Rubber Co.
M 40—Massillon Rubber Co.
M 42—Mattson Rubber Co.
M 44—Mayflower Rubber Works Co.
M 46—Meade Rubber Co.
M 48—Mechanical Fabric Co.
M 50—Mechanical Rubber Co. (Chicago).
M 52—Mechanical Rubber Co. (Cleveland).
M 54—Mercer Rubber Co.
M 56—Merchants' Rubber Co.
M 58—Metal Hose & Tubing Co.
M 62—Meyer Rubber Co.
M 64—Michelin Tire Co.
M 65—Midland Tire & Rubber Co.
M 66—Miller Rubber Co.
M 68—Miner Rubber Co., Ltd.
M 70—Minzensheimer, Dr. Her.
M 72—Mishawaka Woolen Mfg. Co.
M 74—Mohawk Rubber Co.
M 76—Montgomery Bros., Inc.
M 76—Moore, Alfred F.
M 80—Morgan & Wright.
M 82—Mulconroy Company, Inc.
M 84—Mutty, L. J. Co.
M 86—Mutual Tire & Rubber Co.
M 88—Mystic Rubber Corp.

N 2—Narragansett Rubber Co.
N 4—National Aseptic Laboratories.
N 6—National Co.
N 8—National India Rubber Co.
N 10—National Rubber & Specialties Co.
N 12—National Rubber Co.
N 14—National Rubber Mfg. Co.
N 16—National Tire & Rubber Co.
N 18—Needham Tire & Rubber Co.
N 20—Newark Rubber Co.
N 22—New Brunswick Rubber Co.
N 24—New Castle Rubber Co.
N 26—New England Cable Co.
N 28—New Jersey Car Spring & Rubber Co.
N 30—New Jersey Rubber Supply Co.
N 32—New York Belting & Packing Co.
N 34—New York Insulated Wire Co.
N 36—New York Mackintosh Co.
N 38—New York Rubber Co.
N 40—New York Shield Co.
N 42—Northern Electric Co., Ltd.
N 44—Northland Rubber Co., Inc.
N 46—Norwalk Tire & Rubber Co.

O 1—Oak Rubber Co.
O 2—O. K. Tire Co.
O 4—Okonite Co.
O 6—Olden Rubber Mfg. Co.
O 7—Old Town Rubber Co.
O 8—Oliver Rubber Mfg. Co.
O 12—Omo Mfg. Co.
O 13—O'Neil Tire and Rubber Co.
O 14—Oriental Rubber Co.

P 2—Packard Electric Co.
P 4—Panther Rubber Mfg. Co.
P 6—Parker Pen Co.
P 8—Parker, Stearns & Co.
P 10—Partridge, F. E. Rubber Co.
P 12—Pearce-Arrow Tire & Rubber Co.
P 14—Pearce Tire & Rubber Co.
P 16—Peerless Cement Co.
P 18—Peerless Insulated Wire & Cable Co.
P 20—Peerless Rubber Mfg. Co.
P 22—Peerless Tire & Rubber Co.
P 24—Pennsylvania Rubber Co.
P 26—Perfection Tire & Rubber Co.
P 28—Perfection Tube Co.
P 30—Peters Mfg. Co.
P 32—Pharis Tire & Rubber Co.
P 34—Phillips, Eugene F., Electrical Works, Ltd.
P 36—Phillips Insulated Wire Co.
P 38—Phoenix Hermetic Co.
P 40—Pike Rubber Co.
P 42—Pines Rubber Co., Inc.
P 44—Plymouth Rubber Co.
P 46—Polack Tyre & Rubber Co.
P 48—Portage Rubber Co.
P 50—Porter Rubber Co.
P 52—Portland Rubber Mills
P 54—Prenzel, A. H., Rubber Co.
P 56—Progress Rubber Co.
P 58—Progressive Rubber Co.
P 60—Puget Sound Rubber Co.

Q 2—Quabaug Rubber Co.
Q 4—Quaker City Rubber Co.
Q 6—Quality Tire & Rubber Co.
Q 8—Quinn, K. J., & Co.

R 2—Racine Auto Tire Co.
R 4—Racine Rubber Co.
R 6—Rainbow Rubber Co.
R 8—Raley Rubber Co.
R 10—Raymond & Co.
R 12—Reach, A. J., Co.
R 14—Reading Rubber Mfg. Co.
R 16—Reality Rubber Co.
R 18—Republic Rubber Co.
R 20—Revere Rubber Co.
R 22—Roberts Rubber Co., Weldon.
R 24—Roebling's, John A., Sons Co.
R 26—Rome Wire Co.
R 28—Rosenthal & Katz.
R 30—Rosenwald & Weil.
R 32—Royal Equipment Co.
R 34—Royal Rubber Cement Co.
R 36—Royal Rubber Works.
R 38—Rubber & Celluloid Harness Trimming Co.
R 40—Rubber Goods Mfg. Co.
R 42—Rubber Insulated Metals Corp.
R 44—Rubber Products Co.
R 46—Rubberset Co.
R 48—Rubber Step Mfg. Co.
R 50—Rubber Stopple Co.
R 52—Ryan Ideal Stain Blacking Co.

S 2—Safety Insulated Wire & Cable Co.
S 4—Salem Rubber Cement Co.
S 6—Salem Rubber Co.
S 7—Samson Tire & Rubber Co.
S 8—Savage Tire Corp.
S 10—Savoie Rubber Co.
S 12—Schacht Rubber Mfg. Co.
S 14—Schavoir Rubber Co.
S 16—Schaw Cone Tire Co.
S 18—Schein, S., & Sons.
S 20—Schmid-Lyon Rubber Co.
S 22—Schwarzwaelder Co.
S 23—Sciato Rubber Co.
S 24—Seabury & Johnson.

S 26—Seamless Rubber Co. See Advertisement on Page 575.

S 28—Semple Rubber Co.
S 30—Simplex Wire & Cable Co.
S 32—Smith Canvas Tread Tire Co.
S 34—Soltau, Robert, Co.
S 36—Southern Tire & Rubber Co.
S 37—Savoie Rubber Co.
S 38—Spalding, A. G., & Bros.
S 40—St. Louis Rubber Cement Co.
S 42—St. Mungo Mfg. Co. of America
S 44—Standard Four Tire Co.
S 46—Standard Rubber & Cable Co.
S 48—Standard Tire & Rubber Co.
S 50—Standard Tire & Rubber Mfg. Co.
S 52—Standard Underground Cable Co.
S 54—Standard Woven Fabric Co.
S 56—Star Rubber Co.
S 58—Steece, Mortimer.
S 60—Sterling Rubber Co., Ltd.
S 61—Sterling Tire Corp.
S 62—Stokes, Joseph, Rubber Co.
S 64—Stoughton Rubber Co.
S 66—Stowe & Woodward Co.
S 68—Strong Rubber & Asbestos Mfg. Co.
S 70—Sun Novelty Co.
S 72—Sunset Rubber & Supply Co.
S 74—Sussex Rubber Co.
S 76—Swinehart Tire & Rubber Co.
T 2—Taunton Rubber Co.
T 4—Ten Broeck Tyre Co., Inc.
T 6—Thermoid Rubber Co.
T 8—Tilton Rubber Mfg. Co.
T 10—Toronto Rubber Co., Ltd.
T 12—Transparent Rubber Co.
T 14—Traun Rubber Co.
T 16—Tyer Rubber Co.
U 2—U-Glu Supply Corp.
U 4—United & Globe Rubber Mfg. Co.

U 6—United Shoe Machinery Co. See Advertisement on Page 607.

U 8—United States Asbestos Co.

U 10—United States Rubber Co. See Advertisement on Page 567.

U 12—United States Tire Co
V 2—Vail Rubber Co.
V 4—Van Cleef Bros.
V 6—Victor Balata & Textile Belting Co.
V 8—Victor Rubber Co.
V 10—Viscol Company.
V 12—Voorhees Rubber Mfg. Co.
V 14—Vulcalose Co.
V 16—Vulcan Asbestos Mfg. Co., Inc.
V 18—Vulcan Proofing Co.
V 20—Vulcan Rubber Co.
V 22—Vulcanized Products Co.
V 24—Vulcanized Rubber Co.
W 2—Waitt Cement Co.
W 4—Wales Goodyear Rubber Shoe Co.
W 6—Washburn & Moen Mfg. Co.
W 8—Waterman, L. E., Co.
W10—West American Rubber Co.
W12—Western Electric Co., Inc.
W14—Western Reserve Rubber Co.
W16—Western Rubber Co.
W18—Westinghouse Electric & Mfg. Co.
W20—Whitall-Tatum Co.
W22—White, S. S., Dental Mfg. Co.
W24—Whitehead Bros. Rubber Co.
W26—Williams-Bowman Rubber Co.
W28—Wilson Tire & Rubber Co.
W30—Wire & Cable Co.
W32—Wohlberg, Richard.
W34—Woodward, F. E., & Sons.
W36—Woodworth Mfg. Co.
W38—Woonsocket Rubber Co.
W40—Worthington Ball Co.
W42—Woven Steel Hose & Rubber Co.
X 2—Xenia Rubber Mfg. Co.
Y 2—Yatman Rubber Co.
Z 2—Zee Zee Rubber Co.

R. M. LOEWENTHAL & CO.

(INCORPORATED)

SCRAP TIRES TIRES SCRAP

EXCLUSIVELY

51 EAST 42nd STREET
NEW YORK CITY

HODGMAN RUBBER COMPANY HR CO TUCKAHOE, N.Y. EST'D 1838

Rubber Sundries of all kinds for druggists, hospitals, homes, stationers, sportsmen and others.

A complete line of mackintoshes, rubber surface clothing, leggins, hats, etc., for every requirement.

Hodgman long grain, rubber auto top material in one and two plies; coated cloth for manufacturing purposes.

The above—featuring highest quality in materials and workmanship—are priced consistently right.

Descriptive literature and prices will be gladly sent.

HODGMAN
TUCKAHOE NEW YORK

The Seamless Rubber Company

INCORPORATED

NEW HAVEN, CONN.

Manufacturers of

Druggists' Rubber Sundries

including the famous Kantleek Brand

the original two year guaranteed line

Maderite Tennis Balls, approved by the U.S.N.L.T.A. Pure Gum Bathing Caps in attractive styles and colors, Foot-Ball Striking Bag and Basket Ball Bladders of Pure Gum Stock, Pitchers' and Home Plates complete with spikes and other Sporting Goods

Main Offices and Factory, New Haven, Conn.

Inquiries solicited and given prompt attention

THE HARSHAW FULLER AND GOODWIN CO.
Cleveland - New York - Philadelphia
RUBBER MAKERS' CHEMICALS

PARAPHENYLENEDIAMINE

THIOCARBANILIDE

ANILINE OIL

NATIONAL ANILINE & CHEMICAL CO., Inc.

244 Madison Avenue

NEW YORK CITY

SULPHURET OF ANTIMONY

"MADE IN AMERICA"

HEAVY CALCINED MAGNESIA

THISTLE BRAND "MADE IN SCOTLAND"

MINERAL RUBBER

RICHMOND BRAND
AND
NUMBER SIXTY-FOUR "MADE IN AMERICA"

AND OTHER RUBBER CHEMICALS AND COLOR SPECIALTIES

FRAZAR & COMPANY

50 CHURCH STREET — Established 1856 — NEW YORK

REPRESENTED BY

J. A. KENDALL
Second National Bldg.
AKRON, OHIO

FRED L. MOSES
220 Devonshire Street
BOSTON, MASSACHUSETTS

R. NORTHCOTE & CO.
Canadian Pacific Bldg.
TORONTO, ONT.

Emergency stocks carried at above points

THE RUBBER AGE AND TIRE NEWS

MARCH 25, 1918 VOL. II. NO. 13

Member of the Associated Business Papers, Inc.

INDEX TO CONTENTS

	PAGE
How Rubber Protects Our Soldiers from Gas	579
Variability of Plantation Rubber	582
Technical Course in Rubber Manufacture	583
Information Exchange	586
The Coloring of Rubber Goods	587
Synthetic Rubber	587
Obituary Notes	588
Editorials	589
Eastern Rubber to be Baled	590
Rules Governing Arbitration	590
Activities of the Rubber Association	592
News of Interest to the Rubber Trade	593
Happenings of Interest to the Rubber Trade	595
Rubber Companies Expanding	596
American Rubber Patents	596
TIRE NEWS:	
Anomalies in Tire Sizes	597
Big Road Building Program for 1918	599
Happenings of Interest to the Tire Trade	600
Tire and Accessory News	602
MARKETS:	
Manufactured Rubber Goods	603
Cotton, Yarn and Fabric	603
Chemicals and Compounding Materials	604
Crude Rubber	605
Scrap Rubber	605

THE GARDNER-MOFFAT COMPANY, Inc., *Publishers*

120 WEST 32D STREET, NEW YORK

Room 310 Evening Star Building, Washington D. C.

SUBSCRIPTION PRICE: ONE DOLLAR PER YEAR. SINGLE COPIES TEN CENTS. CANADA: TWO DOLLARS A YEAR. FOREIGN: THREE DOLLARS A YEAR.

COPYRIGHT, 1918, BY THE GARDNER-MOFFAT COMPANY, INC., PUBLISHERS.
ISSUED ON THE TENTH AND TWENTY-FIFTH OF EACH MONTH. FORMS CLOSE FIVE DAYS PREVIOUSLY. ENTERED AS SECOND-CLASS MATTER MARCH 26, 1917, AT THE POST OFFICE AT NEW YORK, N. Y., UNDER THE ACT OF MARCH 3, 1879.

TRENTON N.J., U.S.A. **ESSEX RUBBER COMPANY, Inc.** TRENTON N.J., U.S.A.

"SHED-WET" SOLES
FIBRE-RUBBER SOLES
"ESSEX" RUBBER HEELS

MOLDED SPECIALTIES

Trade Mark

AUTOMOBILE ACCESSORIES

INNER TUBES, CEMENTS, ETC.

MOLDED RUBBER GOODS

MAGNESIA—MAGNESITE
CALCINED POWDERED BOLTED
LARGEST AMERICAN PRODUCERS

1890 L.H.B.CO.

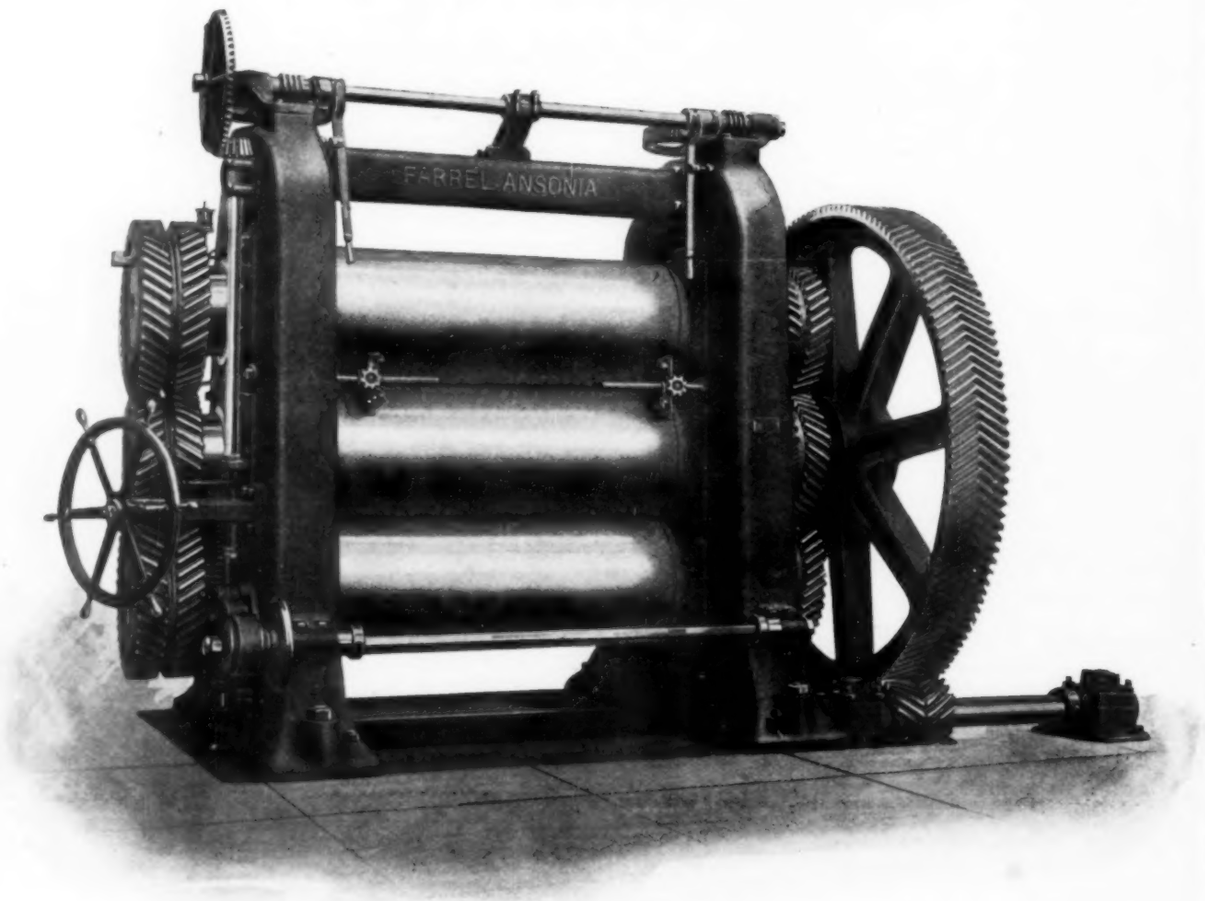
ACCELLEREX—LITHARGE
ANTIMONY SULPHUR-LIME
CARBON—LAMP BLACK
LITHOPONE

L. H. BUTCHER COMPANY, Inc.

ESTABLISHED 1890

NEW YORK LOS ANGELES SAN FRANCISCO

FARREL
Rubber Machinery



We are Engineers and Builders of a Complete Line of

Washers, Mills, Calenders, Presses, etc.

SHAFTING *and* DRIVES

Special attention given to the making of cut double helical "noiseless" drives for mill and calender operation

Farrel Foundry & Machine Co.

ANSONIA, CONN., U. S. A.

Branch Office: 810 Union National Bank Building, Cleveland, Ohio.

APR -9 1918

©CLB411449

THE
RUBBER AGE
AND TIRE NEWS

How Rubber Protects Our Soldiers From Gas

The United States Army is being prepared to meet the gas attacks of the enemy, the means of protection having been devised by the Gas Defense Service of the Medical Department, which comprises about 100 officers and approximately 600 enlisted men.

The two principal factors in gas defense are effective masks and thorough training of soldiers in the use of masks and various methods of avoiding contact with poisonous vapors. Rubber plays an all important part in the producing of gas-proof masks.

Experts who have been sent to this country by the allied governments have pronounced the present American masks the most efficient in existence, and it is reported that the production of these masks is progressing at a rate which insures that the requirements of the American troops abroad will be amply supplied.

At each cantonment in the United States a gas defense school has been established and placed in charge of a Divisional Gas Officer, who works in conjunction with the Chemical Adviser, both trained in the theory and practice of meeting gas offensive. Through these schools every officer and man receives instruction as to proper means of gas defense.

The use of gas in warfare dates back to about 400 B. C. The Spartans saturated wood with pitch and sulphur and burned it under the walls of cities which they were attacking. For several centuries gas had not been used in warfare and the Hague Convention definitely ruled against it. However, on April 22, 1915, the Germans liberated great clouds of gas against Canadian troops near Ypres. Terrible destruction and demoralization resulted from this first gas attack and within a week, England made plans for gas warfare against the Germans. Gas is now an everyday part of war.

Gases may be employed in the form of clouds, or in shells, bombs and hand grenades. The first gas attacks in present war were in clouds. Fumes were liberated from steel containers which were distributed in groups of three or four at intervals of 50 yards along the trenches opposite the line to be attacked. Tubes, provided with a stopcock attachment, were connected with the gas tanks and the end of the tube was passed over the parapet. When an attack was intended, a signal was given and the stopcocks were opened, allowing the gas to escape in the form of liquid, which immediately vaporized.

GAS MASK ADJUSTED
(C) *Underwood & Underwood*

The success of a "gas cloud," which is still used, is dependent upon atmospheric conditions. Careful planning is necessary. The fact that trenches are irregular, often with wide juts, renders it difficult to liberate a gas cloud effectively. The gases used, being heavier than air, when released under proper atmospheric conditions, are blown or appear to roll along the ground, usually, in the form of a dense, greenish-yellow cloud. At best, the cloud method of using gas is uncertain.

By far the commoner gas method is its use in shells, bombs and hand grenades. Gas thus used has a distinct military advantage in that it is possible to place it where it may be needed, to form a gas barrage or a smoke barrage to prevent the bringing up of reinforcements or the retreat of defeated troops.

Many kinds of gases are used. Some are merely gases which temporarily affect the eyes and are more inconvenient than serious. Other gases are terrible in their effects unless proper protection is available.

Early Masks

Soon after the first German gas attack, English and French women sent to the front hundreds of thousands of home-made gas masks. For the most part they were merely bandages impregnated with chemicals to wrap around the mouth and nose. These emergency masks saved many lives but afforded only limited protection.

The next step in gas masks was a cloth helmet or hood, which had been dipped in neutralizing solution, the bottom of which was tucked in the collar. This hood had two eye goggles. Air was breathed in through the cloth. The chemicals in the cloth filtered the incoming air, but there was no provision for exhalation and within a short time the man was unable to get a proper amount of good air.

The next improvement was to put

in an exhaust or outlet for the exhaled air. This type of mask has been used extensively. Its disadvantages are that a man can not hear

GAS MASK AT ALERT POSITION
(C) *Committee on Public Information*

well, the chemical in the cloth cause him trouble and the mask cannot long remain impermeable to gases.

Box Respirator Masks

The small box respirator mask was next developed and it is the model of the mask we are at present using. It is the highest development, affording good protection. It has an impervious face-piece, with glass or celluloid eye pieces, held in place by rubber bands around the head. A canister is carried in a small knapsack and a flexible rubberized tube connects the box in the face-piece. Inside the face-piece is a small wire clamp with rubber pads which fits on the nose and forces the wearer to breathe through his mouth. The end of a flexible tube has a rubber mouthpiece through which the man breathes. The incoming breath come through the canister, which is filled with several layers of special chemicals of an absorbent nature which neutralize or render harmless the gas laden air. The outgoing breath passes outside the face-piece through a small rubber valve.

In the German mask the container for the neutralizing chemicals is screwed onto a ring in the bottom of the mask. With the German mask there is no outlet valve for the exhaled air, both incoming and outgoing air passing through the container.

AMERICAN GAS MASK, SHOWING RESPIRATOR CANISTER
(C) *Committee on Public Information*

METHOD OF CARRYING MASK
(C) *Committee on Public Information*

The first work toward the establishment of an American gas defense service was done under the supervision of the Bureau of Mines, which had the personnel and equipment to carry on experimental work. In July, 1917, a special department to carry on gas defense work was established. Following the example of the English, this department was incorporated into the Medical Department of the Army. The Bureau of Mines turned over much valuable material and still continues to give active cooperation.

The Gas Defense Service

The Gas Defense Service is divided into three separate parts: (1) Field Supply Section; (2) Field Training Section; (3) Overseas Repair Section.

METHOD OF PLACING MASK IN POSITION
(C) *Committee on Public Information*

The function of the Field Supply Section is to manufacture or procure all gas defense materials and equipment. The big work, of course, is to furnish our troops with effective masks. The small box respirator type of mask, admittedly the best mask in existence, was accepted as a model.

The manufacture of a gas mask of this type presented a problem. No manufacturing firms had experience with an article of this kind. More than ordinary care must be used in making parts because the slightest defect would render the mask useless. The wide variety of materials going

MASK IN POSITION
(C) *Committee on Public Information*

into the mask made it necessary to have the parts made in separate plants and assembled at a central plant. At present about sixty manufacturing firms contribute directly to the making of the American mask.

With no actual experience to depend upon, much experimental and research work was necessary. An extensive experimental organization was built up, with branches in several cities. Recently it was decided to establish a Government operated plant to handle the final assembling and the difficult sewing operations on the face-piece. This plant will soon be in full operation with about 4,000 employes.

The American gas mask, similar to the British, is as mechanically perfect as the best expert in the country have been able to produce. The

ALARM HORN
(C) *Committee on Public Information*

vital feature of any respirator mask is the chemicals contained in the canister. These chemicals and absorbents are made from secret formulæ.

Face-Piece Construction

The face-piece consists of a base of cotton fabric, carefully rubberized. These face-pieces are made to fit various types of faces. A net work of elastic bands over the head holds the face-piece in place. The ears are left uncovered.

The mask is carried in a knapsack at the left hip, supported by a shoulder band. When troops approach a danger zone, the straps are shortened and the knapsack is shifted to rest high on the chest, ready for instant use. This is known as the "alert position." The soldier has merely to open the knapsack, pull out the flexible hose with the face-piece attached, put the rubber mouthpiece in his mouth and adjust the bands over his head. The nose clip can easily be adjusted from the outside after the face-piece is on. This nose clip insures that even if the fabric of the face-piece should be pierced, the soldier would still be breathing entirely through his mouth.

For every mask made there is at least one extra canister. These canisters are detachable from the tube. When a canister has lost its efficiency, it can be detached, and a new canister put on.

About the first thing a soldier wants to know about a gas mask is how much protection it affords him. The best answer to this question is that the present American mask affords more protection than any device in existence. The chemicals in the canister will neutralize the heaviest concentration of gases for a period at least ten times longer than the possible duration of any gas attack.

Functions of Field Supply Section

While the main function of the Field Supply Section is to supply gas masks, it is also responsible for the supply of all other gas defense equipment. This includes masks for horses, which consist of several layers of fabric which are impregnated with neutralizing chemicals. Trench or flapper fans must also be supplied in considerable number. Oxygen inhalators and oxygen bottles for use in field and base hospitals are also supplied in large numbers. Instruments for the detection of gas and the spreading of gas alarms are necessary. These consist of horns, rattles and special detecting devices.

There is perhaps no feature of modern warfare in which the psychological element is more important than in connection with gas. Gases are uncanny to the untrained man. Every soldier must be made to understand that there is no protection except the gas mask, and he must believe in the value of his equipment.

Protection of Weapons and Instruments

A gas cloud attack will corrode the mechanism of a machine gun and soon put it out of commission and it will spoil ammunition and ruin such delicate instruments as a telephone or telegraph. Officers are taught how to protect equipment and they train their troops accordingly.

Here again rubber plays an important part in providing gas-proof covers for weapon and instrument parts that can be damaged by the enemy's chlorine gas.

Use of "Flappers"

When a gas attack is over the men use "flapper" fans, which look like big fly-swatters, and beating the bottom of the trench with these, throwing the fan well up at each blow, they set up air currents that displace the gas still remaining in the trench.

These "flappers" are made of heavy rubberized fabric, reinforced with braces and have handles two feet long.

Dug outs are provided with rubberized blanket doors that are kept rolled up over the doorway and are dropped the moment the gas alarm sounds.

Gas warfare is new. The methods of gas and shell and cloud attack are being changed almost daily. But thanks to rubber, science, thorough training and rigid discipline, new conditions are readily met and successfully overcome.

CLOSE VIEW OF AMERICAN GAS MASK
(C) *Committee on Public Information*

GERMAN TYPE OF GAS MASK
(C) *Committee on Public Information*

Variability of Plantation Rubber*

In one sense the variability of plantation rubber has been swamped by the hugeness of the crop harvested in the East, and, in view of the circumstances incidental to research in the tropics and in England, it is not surprising that this important matter has been lost sight of by many rubber planters. Variability does, however, still play an important part in the manufacturing processes, and the sooner it is eliminated the better for the whole industry. The causes operating to produce variability are very numerous, and the remedies to be tried are almost unlimited. B. J. Eaton (Agricultural Bulletin of the Federated Malay States, No. 10, July, 1917), states he has found that variability in rate of cure of the raw product is brought about by two factors: (1), the amount of an accelerator or catalyst produced in the raw rubber from the nitrogenous constituents of the latex by allowing the coagulum to mature for about six days before machining, and (2), the amount of some accelerating substance in the latex which is retained in the rubber by some process of preparation in which all the serum is retained.

According to Mr. Eaton, the first of these substances, which has the greatest influence, especially in small quantities, has been found to be some decomposition product of the nitrogenous constituents. The second substance exists originally in the latex, and is removed almost entirely when the fresh coagulum is converted shortly after coagulation to thin crepe.

In dealing with the first of these factors, Mr. Eaton summarizes those which will influence the amount of such accelerator in the rubber. They are as follows:

(1) Amount of moisture in the prepared rubber.
(2) Amount of serum retained.
(3) Rate of drying.
(4) Thickness of coagulum before and after machining.
(5) Presence of antiseptics, e. g., formalin, sodium sulphite and sodium bisulphite.
(6) Influence of different coagulants.
(7) Excess of coagulants, especially of certain coagulants.
(8) Influence of smoking.
(9) Influence of artificial methods of drying.
(10) Action of various chemicals on the finished rubber in retarding or accelerating rate of cure.
(11) Concentration of the latex.
(12) Action of water as a solvent.

In dealing with the second accelerating factor, the factors which influence the amount present are:

(1) Concentration of latex.
(2) Effect of water as a solvent on the finished rubber.

Whether other factors, such as the nature of the coagulant, or an excess of coagulant, antiseptics and other chemicals or smoking, have an effect on rapidly curing rubber, the rapidity of cure, which is due to some constituent of the latex normally removed in the serum by the machining of fresh coagulum, has not yet been ascertained, but it is probable. In support of this Mr. Eaton finds that hard Para, which is comparatively slow curing, contains all the serum constituents and should be rapidly curing, but the vulcanization is retarded by the smoking process.

Factors Accelerating Rate of Cure

Dealing briefly with the factors involved in the variability of the first type of rubber, the amount of some protein degradation product formed during the maturing of the coagulum by natural biological processes, the following factors are given as tending to accelerate the cure:

(1) High moisture content up to a certain limit.
(2) Large amount of serum.
(3) Thickness of coagulum up to a certain limit, which affects the rate of drying.
(4) Slow drying.
(5) Concentration of latex.
(6) Action of certain chemicals, especially the alkalis, soda and potash and their carbonates.

Factors which Retard the Cure

The following factors retard the rate of vulcanization:

(1) Low moisture content in the prepared coagulum.
(2) Removal of serum.
(3) Rapid drying.
(4) Thinness of coagulum, which produces rapid drying, and is also responsible for the removal of serum by machining.
(5) Presence of antiseptics, especially formalin, also boracic acid and tannic acid.
(6) Certain coagulants, e. g., the mineral acids, especially hydrochloric, sulphuric and hydrofluoric acids and certain salts, especially the alums.
(7) Excess of coagulant, the effect of excess of weak organic acids, such as acetic, formic, citric, tartaric and oxalic, is not very marked, while excess of the mineral acids has a marked retarding effect.
(8) Smoking.
(9) Artificial methods of drying, not very great in the case of thin crepe, which is the only type of rubber subjected to artificial methods of drying.
(10) Dilution of latex with water.
(11) Action of water as a solvent.

With regard to the second factor responsible for variability in rate of cure, the influence of various factors in retarding the rate of cure has not yet been investigated, but Mr. Eaton thinks it probable that smoking, mineral acid coagulants and the alum and other antiseptics and chemicals will retard vulcanization.

It is, no doubt, manifest from these observations that variability is a subject demanding concentrated research in the tropics on the part of scientists and planters.

* From *The India Rubber Journal*.

Length of Belting in Coils

A short method for finding the approximate length of a belt in a roll when closely coiled as given by the *American Machinist* is to add together the diameter of the roll and the diameter of the center hole, both in inches. Divide by 2 to get the mean diameter. Multiply by the number of coils in the roll and by 3.1416, which will give the result in inches; or divide by 12, and the result will be in feet.

Example—How many feet of belting in a roll 48 in. in diameter with a 6-in. center hole and 60 coils?

$48 + 6 = 54 \quad \frac{1}{2} \times 54 = 27$

$27 \times 60 \times 3.1416 = 5089\frac{3}{8}$ in. or about 424 ft.

An abbreviation of the above method is as follows: Add together the diameter of the roll and the diameter of the center hole, both in inches; multiply by the number of coils in the roll and by 0.131. The result will be the approximate length in feet, regardless of the belt thickness. The 0.131 is obtained by dividing 3.1416 by 2 and the 12 first mentioned.

A Word of Warning

British machinists should be careful in supplying specifications and drawings of rubber working machinery, especially when the inquiry comes from some person other than an actual manufacturer of rubber or rubber goods, according to *The India Rubber Journal*. It is said that certain firms outside of the United Kingdom are seeking to obtain detailed specifications and careful drawings of rubber machines, and are seeking to supply such machines in markets which are not for the time being, owing to the war, open to British manufacturers who are engaged on war work, and are temporarily unable to supply all the requirements of their regular customers.

Technical Course in Rubber Manufacture*

By H. E. Simmons, M.S.

Professor of Chemistry in the Municipal University of Akron

Copyright, 1918, by The Gardner, Moffat Co., Inc.

SECTION XVIII

Methods of Reclaiming Rubber

In this section, we shall consider the different ways in which rubber which has been once used may be treated and thus returned to compounds.

This of course includes a great many different processes because of the great variety of compounds or stocks which furnish the material to be reclaimed and then too the great number of stocks into which the shoddy may be worked.

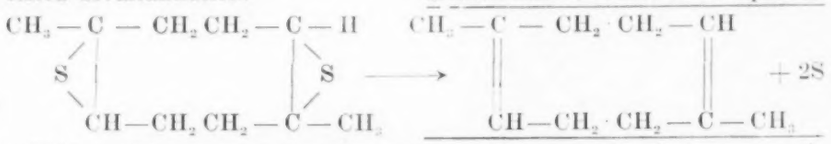
We shall have therefore as raw material which is to be reclaimed, first, unvulcanized stock in the form of trimmings. This may have in it fabric, mineral fillers and its free sulphur. Second, the vulcanized stock, ranging in degree of vulcanization from soft cure up to hard cure or ebonite. These materials may contain fabric, fillers, and even metal as we find the metal beads in tires, free sulphur and substitutes. Third, we have hard rubber waste itself.

The first class of material very seldom comes into the hands of the reclaimer proper for being unvulcanized. All that is necesasry is to treat the waste with a rubber solvent like naphtha. A great deal of the waste does not contain even fabric, but simply the rubber plus the sulphur and mineral fillers, and when the solution is effected, the naphtha solution is wrung out of the fabric if it is present, and if absent it is decanted from the mineral matter. The solvent is then evaporated and the rubber is thus reclaimed. This is a very simple process, and, although strictly speaking it is a form of reclaiming, yet it is one that is not regarded as such in the reclaiming industry.

The big problem that confronts the reclaimer is the handling of the second class of materials, namely that which has been vulcanized and thus had some of its chemical and physical properties changed by some of the sulphur having entered into chemical union with the caoutchouc.

Therefore every man when he approaches the problem does so with the idea that he will be able to find a process whereby the original hydrocarbon will be found again in a form capable of the same degree of vulcanization that it possessed before it ever went into a rubber compound. In fact he tries to split off the sulphur atoms in the vulcanized molecule and thus go back to the unsaturated hydrocarbon.

This might be represented as the reverse of the action which took place during vulcanization and might be called devulcanization.



This would represent the process in the case of ebonite. That this goal has never been reached and that it is not probable that it will be reached seems apparent today.

The formula $C_{10}H_{16}S_2$ as we have mentioned before represents hard rubber, yet the rubber which has been subjected to reclaiming contains much less combined sulphur than this formula indicates.

The above formula contains approximately 32 per cent of sulphur, while the material used by the reclaimer will average about 3 per cent or even less. It would appear therefore that a large part of the rubber is not vulcanized and that all that would be necessary to obtain the unvulcanized rubber would be to treat the product with a suitable solvent, then evaporate it off and the rubber would thus be obtained. But this is not the case, for the combined sulphur and the product in which it exists are very securely bounded and held together.

However, to effect the above mentioned change many patents have from time to time appeared, many of which have never been put into practice and many of which have been allowed to lapse. We shall simply mention some of these and when doing so will classify them as to whether purely mechanical processes or chemical ones. The latter may be either by "Acid" or "Alkali."

Devulcanization Processes

In 1857, Conrad Poppenhusen and Ludwig Held suspended finely divided rubber in different solvents and then conducted into this mixture dry ammoniacal gas. The gas is absorbed and the gum swells, the whole mass becomes viscid, and this material is then suitable to be used in new compounds.

One of the oldest methods was presented by Hiram L. Hall in 1858. In this process the vulcanized rubber was boiled up with water in a caldron after it had been reduced to a finely divided state to make it semi-plastic. It could then be put into compounds again.

In 1860, Edward Simon patented a process in which he subjected one hundred parts of shredded waste vulcanized India rubber and two parts of chloride of lime to an open heat at a temperature of 1000 deg. to 1100 deg. F. The rubber melted and during constant stirring the sulphur was distilled out. The plastic mass which remained could then be worked into new stocks.

In 1861, John Murphy took out a patent for the reclaiming of rubber whereby the old rubber was mixed with sulphur and vulcanized until it formed hard stock. This was then reduced to a powder and then mixed with unvulcanized gum and made into whatever form was desired and this vulcanized. This was a peculiar manner, to say the least, of using waste rubber.

In the same year, Charles McBurney patented the idea that by mixing old vulcanized rubber which had been reduced to a fine state with oils like pine or rosin oil, cottonseed oil, olive oil, castor oil, palm oil, or cocoanut oil, and allowing it to stand for several hours, then by adding raw rubber and the necessary fillers for which the product is intended, the material may be all incorporated on a mill and vulcanized. It thus affords a way of using old rubber.

Thomas J. Mayall in 1862 proposed that vulcanized rubber waste might be rendered fit for use again by grinding the material to a fine powder. He then made up a batch composed of five-eighths of this old rubber and three-eighths of a vegetable oil or

* This course commenced in the July 10, 1917, issue of THE RUBBER AGE AND TIRE NEWS and will be complete in 28 issues.

pine oils and mixed them thoroughly on a mill. This material was then subjected to a gentle heat.

In 1863, Alfred Ford patented in England a process in which the old rubber is boiled with a strong solution of alkali; the material is then powdered and placed in moulds which are subjected to a hydraulic pressure and heat of ordinary vulcanization by which the whole will be agglutinated.

In 1863, Charles H. Hayward patented what may be regarded as the acid process of today.

In 1871, H. Smyser brought out a patent for the using of old rubber by simply reducing it to a fine powder on a grindstone and then incorporating this dust into a new compound.

In 1881, N. C. Mitchell defended by patent what is known as the acid processes.

He reduced the rubber to be treated to fine state of division, then placed it in a tight steam box in which a steam pressure of from 50 to 75 lb. could be maintained. Into this box containing the rubber he placed sulphuric acid or muriatic acid of varying strength, depending upon the grade of compound to be treated. Then the whole was closed and the steam turned on for from one to five hours. The rubber was then removed, washed and dried. This treatment of course removes fabric from the compound as well as mineral fillers which are used.

McDermott in 1882 modified the Mitchell acid process a little by adding alone with the charge of acid and rubber some manganese dioxide and a solution of potassium biehromate. Then he subjected the whole to steam under pressure, the result being practically the same.

In 1883, A. W. Kent patented an apparatus for the washing of ground rubber on a sieve, thus allowing the dirt and sand to be washed away, also the fiber, and allowing simply the vulcanized rubber with its fillers to remain. This is dried and as such is mixed with new compounds.

In 1883, John L. Chadwick patented a process for removing both cotton and wool fabric from vulcanized rubber. The scrap is first immersed in muriatic acid of 10 deg. Baumé and then heated to from 200 deg. to 212 deg. F. This continues for a couple of hours, when the cotton is destroyed. The material is then wrung out of the acid and passed through a wool picker. Not all of the wool is removed in this way, so it is then placed in a 22 deg. Baumé solution of caustic soda. Before this all the acid must be removed by washing. When removed from the soda solution and washed, it is in a good workable form.

In 1884, J. J. Montgomery subjected vulcanized rubber to the action of hydrocarbons obtained from petroleum, that have boiling points around 400 deg. to 450 deg. F., at a temperature of 350 deg. F. The rubber becomes a doughy or plastic mass from which the oils are removed by heat.

In 1890, N. C. Mitchell patented a new modification in which the rubber after it had been ground and washed is heated with steam in the presence of calcium sulphide to which has been added some heavy petroleum which keeps the rubber in a moist condition.

Maximilien Gerber in 1894 protected his process of reclaiming by a patent whereby the rubber scrap is heated in a double bottomed closed vessel with a solvent for the gum along with a metal, in the finely divided condition, which has a great affinity for sulphur. Such metals are iron, tin, lead, zinc, mercury, etc., and the solvent being benzine, carbon tetrachloride and the like.

The charge is heated to from 139 deg. to 144 deg. C. for about eight hours; then it is allowed to stand in a receiver for twenty-four hours, when the sulphides and fillers will have settled out and the rubber solution is decanted. The rubber is obtained by evaporating the solvent or as a solution is used to waterproof cloth.

In 1899, A. H. Marks patented what is known as the alkali process. By this method the ground rubber waste is brought to a temperature of 344 deg. to 370 deg. F. in a 3 per cent solution of caustic soda. This is effected in a closed tank, and after a period of about twenty hours the process is completed, when the rubber is removed, washed and dried. This removes the free sulphur, the fabric and many of the fillers like lead compounds and aluminum ones. In 1900, he modified his patent by substituting a rotating cylinder which allowed a better mixing during the treatment with steam.

In 1900, Johan Theilgaard reclaimed waste rubber with the use of potassium cyanide, but this is too dangerous a process to be recommended.

In 1900, Robert Cowan patented a machine for removing foreign matter from old rubber. Before this time, materials like nails, leather, strings and bark had been removed largely by washing. His machine is what is known as a strainer. The rubber is fed into a machine which, by means of double walls, is heated by live steam to a temperature where the rubber begins to soften; then by a worm is forced through the strainer discs which retain the solid particles but allow the passage of the rubber. This machine in some modified form is used today in the reclaiming business in connection with the different processes for removing the iron. Along with it, however, a powerful magnet is also used to remove iron particles. In 1904, L. T. Petersen modified the alkali process by first treating the washed and shredded rubber with the alkali raised only to its boiling point. After the fiber is removed, the rubber is taken from this solution and treated with an aqueous solution of a hydrocarbon or oxyhydrocarbon such as phenol under high temperature and pressure. The remaining alkali is here combined and the rubber reclaimed or rendered workable.

In 1908, George Capelle reclaimed by using as a solvent the hydrocarbons which result from the distilling of India rubber in vacuo.

In 1909, Auguste Tixier treated rubber waste with terpeneol, which dissolved the rubber, and then he precipitated it by the addition of alcohol.

In 1910, G. S. Heller patented what is termed the Electric Reclaiming Process. The rubber is first reduced to a fine state of division and is then charged into a large metal cylinder which may be stationary and contain agitating paddles on the inside, or it may be a rotating drum thus agitating the solution. Around the container is placed a large band which connects with one of the poles of a generator, and into the center of the drum projects the opposite pole from the generator. The following charge is placed in the retainer: 100 lbs. of ground rubber, 600 lbs. of water, 21 lbs. of sodium hydroxide and 1 lb. of ferric sulphate. The retainer is closed, steam is turned on and the contents heated to from 330 deg. to 370 deg. F., the whole agitated and the electric current will also flow through this electrolyte, thus its name. The process requires from ten to twenty-four hours. The rubber is removed, washed, and dried. In many respects the product resembles that obtained by the alkali process.

David A. Cutler in 1913 recommended the use of zinc chloride as a solvent for the fabric in the place of either acid or alkali. As a workable charge he used: 35 lb. of ground rubber; 87.5 lb. of water; 17.5 oz. of zinc chloride; 4 lb. 6 oz. of oil, which is a distillate from pine wood. This is all thoroughly mixed in a tank and finally heated in a closed vulcanizer at a pressure of 100 lbs. of steam. The rubber is removed and washed.

In 1913, H. W. Kugler modified the alkali process by adding to the charge two to five per cent of aniline. The charge is subjected to a pressure of from 60 to 150 lbs. of steam for eight hours. The rubber is removed, washed and dried.

In 1915, Orrin A. Wheeler patented the following process: "The improved method of treating rubber scrap containing fiber is as follows: The scrap, such as tires, shoes, hose, etc., is ground and pulverized in the usual manner. The pulverized material is then treated with a strong solution (about 20 per cent) of caustic soda and allowed to stand in a cool place approximately from three to five hours. Next the material is placed in a digester which is equipped so that it can be sealed or closed up tightly, and carbon disulfide (CS_2), about one pound more or less according to the character of the material treated to about ten pounds of dry rubber scrap, is added to the material, and then the digester is closed and hermetically sealed. This mixture is permitted to remain in the digester for from one to five hours to permit chemical reaction to occur, the digester being operated during such a period to stir and agitate the mass to facilitate the said reaction and thereby bring about a combination of the sulphur with the cellulose, and so producing a cellulose Xanthogenate. On completion of this reaction, the rubber and fiber are converted into a sticky cohesive mass. Next water in quantity approximately equal to the original dry rubber is added to the material in the digester and the agitation is continued, the water mixing with the cellulose to distend it. Next the mass in the digester is heated by carefully raising the steam pressure in the heating chamber around the digester to approximately 100 lbs., which pressure is kept up for a period ranging approximately from fifteen to twenty hours, according to the stock under treatment, and during such time agitation and stirring of the mass will be continued a part of or all the time. This heating causes the cellulose to become insoluble in water and devulcanizes the rubber in the presence of caustic soda and carbon disulfide. In this process carbon disulfide tends to dissolve the combined sulphur and dissolves all the free sulphur, and when heated produces a high pressure in the digester, thereby causing thorough impregnation of every particle of rubber under treatment and greatly assisting in the recovery of the rubber. The solvent may, of course, be recovered.

In this method of reclaiming rubber, the cotton fiber that is usually destroyed or removed in other processes is permitted to remain with the rubber and utilized and becomes a valuable ingredient in both soft and hard rubber compounds. The rubber and elastic tenacious cellulose unite and intermingle so that an article made therefrom will possess the toughness and wearing qualities of new and pure rubber and will be superior for some purposes, particularly where the article made from the reclaimed product is to be subjected to heat, is exposed to the elements or to the action of oils, acids and alkalis. Since the cellulose of the fibrous material in the scrap is utilized to advantage in the product, the cost is less than under any previous process in which the fiber is destroyed and removed or removed without being destroyed.

An excellent grade of material can be made from the product of the process with the addition of sulphur, and with the addition of some of the cheaper gums, such as pontianiac, acra flake, guayule, an article of a higher grade can be produced at a low cost. If desired new rubber may be added.

A comparatively good grade of reclaimed rubber can be obtained by introducing the alkali and carbon disulfide at the same time, but better results are believed to result from the successive treatment with the alkali and carbon disulfide as herein before set forth.

The invention is not to be understood to be restricted to the precise process and proportions set forth, since these may be modified by those skilled in the art without departing from the spirit and scope of the invention.

In 1916, Gray Staunton ground rubber and cleaned it of fiber by a mechanical process. This material is then mixed in the proportion of 80 per cent waster rubber and 20 per cent dry potassium carbonate. The mixture is placed on trays and placed in a tight heater and steam admitted to a pressure of from 15 to 60 lbs. The sulphur is removed as K_2S_5 which is soluble in water.

Rubber waste has been worked up with linseed oil while heating and the resulting semi-liquid mass was treated with sulphur monochloride when a so-called rubber substitute is produced.

In the above we have not mentioned all of the various methods that have been suggested from time to time, in fact very few of the patents have been mentioned, but we have striven to give types. When a careful survey is made of all of these and the many other patents also, it will be perfectly apparent to all that there are only about two methods, namely, the alkali and acid processes, or perhaps a combination of these two into one called the acid-alkali method.

Practically all patents claim to be able to remove all of the sulphur from the rubber, and yet the fact remains that no sulphur-free shoddy is to be obtained on the market. Therefore, there is a limit to the number of times that the same rubber may be put through the reclaimer, and that limit is reached in ebonite or hard rubber. Today hard rubber is generally reduced to a powder and incorporated into compounds simply as an inorganic filler might be. In the mind of the writer the most important thing in the reclaiming business, regardless of the method, is the removing of the fabric and free sulphur at as low a temperature as possible. We know that alkalis have a pronounced accelerating action upon the rate of cure of rubber; therefore, when waste rubber containing free sulphur is placed in a devulcanizer of whatever type, and the alkaline solution added, and the steam turned on until a pressure of 60 lbs. or more is reached, there is every reason to believe that some additional vulcanization is sure to take place although we are carrying on what we term devulcanization.

Then again it is imperative that as much as possible of the alkali be removed from the finished product either by washing or by the addition of a little acid to neutralize it, for if any remains it exists there as an uncontrollable accelerator in whatever compound this shoddy may be used.

By the acid process, the finished product seems to oxidize or deteriorate more rapidly. It becomes hard on the surface and will easily crack.

It might be worth while to try and see what kind of a product could be obtained if the free sulphur was first removed from the ground rubber waste with extraction with hot acetone and then the application of the alkali method. That would prevent any further vulcanization during the reclaiming process.

This question comes as a side issue to that of reclaiming. Is it possible to recover the cellulose in a form or modification from the acid or alkaline solution, depending upon the process used? Great volumes of cellulose are consumed here. Or could the soluble mineral fillers be profitably recovered from these solutions? These questions may be answered some day of course, and make it possible to manufacture valuable by-products from materials that are lost in the methods now used in reclaiming old rubber.

Information Exchange

Wants Rubber Footwear Repair Equipment

Inquiry No. 12.—Kindly tell us where we can get rubber boot and shoe repairing equipment.

Answer—The only concern we know of that makes the equipment you desire is Charles E. Miller, Anderson, Ind.

"M. R. X."

Inquiry No. 13.—We believe you are familiar with the names of the manufacturers of "Emarex," which is the trade name for a certain mineral rubber sold to the rubber trade. We would like to get in touch with these people.

Answer—"Emarex" or "M.R.X." is a natural mineral rubber and is sold by the Standard Emarex Co., 185 Madison Avenue, New York City.

Rubberizing Equipment

Inquiry No. 14.—I am planning a fabric rubberizing plant to produce large quantities of material for a patented life-saving suit. I will need a complete equipment including mills, churns, cloth dryers, calenders, spreaders and vulcanizers and trust you can put me in touch with manufacturers of this equipment.

Answer—You con secure the equipment you desire as follows:

MILLS, CLOTH DRYERS, SPREADERS, CALENDERS AND VULCANIZERS

Adamson Machine Co., Akron, Ohio
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Machine Co., Ansonia, Conn.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio
Williams Foundry & Machine Co., Akron, Ohio

MILLS AND CALENDERS

John E. Thropp's Sons Co., Trenton, N. J.
Lobdell Car Wheel Co., Wilmington, Del.

MILLS

William R. Thropp Sons' Co., Trenton, N. J.

CHURNS AND MILLS

J. H. Day Co., Cincinnati, Ohio
Werner & Pfleiderer Co., Saginaw, Mich.

CHURNS

Charles Ross & Sons Co., 148 Classon Ave., Brooklyn, N. Y.

CLOTH DRYERS

Philadelphia Drying Machine Co., Philadelphia, Pa.
C. H. Butterworth Co., Philadelphia, Pa.
Textile Finishing Machine Co., Providence, R. I.

SPREADERS

American Tool & Machine Co., 109 Beach St., Boston, Mass.
New England Butt Co., Providence, R. I.

VULCANIZERS

Biggs Boiler Works Co., Akron, Ohio
Southwark Foundry & Machine Co., Philadelphia, Pa.

Boiling Tire in Potash Solution

Inquiry No. 15.—We want to clean a motor truck tire without removing the solid rubber tire from it. Can we boil the whole in potash solution without damaging the tire?

Answer—You can boil your wheel and tire in a 5 per cent solution of caustic potash for ten or fifteen minutes without danger of injuring the tire. Of course, it is not advisable to repeat this treatment too often, for it cannot be said to be beneficial to the rubber tire. Ten minutes should be more than sufficient to thoroughly cleanse the wheel.

Wants Crude Samples

Inquiry No. 16. — We are large manufacturers of automobile tires and would like to be put in touch with some crude rubber importer or broker from whom we can obtain samples of the various kinds of crude rubber.

Answer—You can get the samples you want through your regular supply house or from the following: Chas. E. Wood, 149 Broadway, New York City; F. R. Henderson & Co., 82 Beaver St., New York City; Ernest Jacoby, Boston, Mass.; Thomas Hydes, 105 East Hanover St., Trenton, N. J.; Continental Rubber Co., 120 Broadway, New York City; Charles T. Wilson Co., 56 Wall St., New York City; Raw Products Co., 78 Wall St., New York City; H. A. Astlett & Co., 113 Pearl St., New York City, and Pell & Dumont, 68 Broad St., New York City.

Wants Rubber Cords

Inquiry No. 17.—Please give me the names and addresses of concerns manufacturing or dealing in ⅛-in. rubber cords used for motive power in airplane models.

Answer—You can secure the rubber cords you desire from the following concerns: United States Rubber Co., 1790 Broadway, New York; J. Wood Elastic Web Co., Stoughton, Mass.; Dural Rubber Corporation, Flemington, N. J.; General Rubber Goods Co., Cleveland, Ohio; George S. Colton Elastic Web Co., Easthampton, Mass.; Russell Mfg. Co., 349 Broadway, New York.

British Seamless Rubber Manufacturers

Inquiry No. 18. — Kindly tell us which British concerns manufacture seamless rubber gloves.

Answer.—We have no record of the British concerns that actually manufacture seamless rubber gloves, but we believe that it is safe to assume that this article is now produced by the following manufacturers of seamless rubber goods: Wm. Warne & Co., Limited, 29 Gresham St., London E.C., England; Leyland & Birmingham Rubber Co., Limited, Leyland, England; A. S. Cartwright Co., Limited, Kingsnorth Rubber Works, Northfield, Birmingham, England; Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada.

Outside Circumferences of Tire Cores

Inquiry No. 19.—We would much appreciate receiving a list of outside circumferences of tire cores used by the leading manufacturers in 1916 and 1917.

Answer.—It would not be practicable to give such a list on account of numerous variations in the measurements of the cores used by different manufacturers, but the following list will give you a fair idea of the circumferential measurements of clincher, quick detachable clincher and straight-side tire cores:

Sizes.	Clincher.	Quick Detachable Clincher and Straight-Side.
30 x 3	7 ft. 6½ in.	.....
30 x 3½	7 ft. 6½ in.	7 ft. 8¾ in.
31 x 3½	7 ft. 9½ in.	.....
32 x 3½	8 ft. 0½ in.	8 ft. 3 in.
34 x 3½	8 ft. 7 in.	8 ft. 9½ in.
31 x 4	7 ft. 9¼ in.	.....
32 x 4	8 ft. 0½ in.	8 ft. 3 in.
33 x 4	8 ft. 3½ in.	8 ft. 6 in.
34 x 4	8 ft. 6¾ in.	8 ft. 9¼ in.
35 x 4	8 ft. 10 in.	9 ft. 1¼ in.
36 x 4	9 ft. 1 in.	9 ft. 3½ in.
34 x 4½	8 ft. 5⅝ in.	8 ft. 8¼ in.
35 x 4½	8 ft. 9 in.	8 ft. 11½ in.
36 x 4½	9 ft. 0 in.	9 ft. 2⅝ in.
37 x 4½	9 ft. 3 in.	9 ft. 5¾ in.
35 x 5	8 ft. 9½ in.	9 ft. 1½ in.
36 x 5	9 ft. 0¼ in.	9 ft. 2½ in.
37 x 5	9 ft. 3⅜ in.	9 ft. 5⅝ in.

Wants Toy Balloons

Inquiry No. 20.—We are in the market for toy balloons and would appreciate your putting us in touch with manufacturers of this article.

Answer.—The following concerns manufacture toy rubber balloons: United States Rubber Co., 1790 Broadway, New York; Miller Rubber Co., Akron, Ohio; Davol Rubber Co., Providence, R. I., Faultless Rubber Co., Ashland, Ohio; Gregory Rubber Co., Akron, Ohio; Sterling Rubber Co., Guelph, Canada; Western Reserve Rubber Co., Akron Ohio; Canadian Consolidated Rubber Co., Ltd, Montreal, Canada.

Artificial Aluminum Oxide

Inquiry No. 21.—In THE RUBBER AGE AND TIRE NEWS of Jan. 25, in an installment of your serial "Technical Course in Rubber Manufacture," by Prof. H. E. Simmons, reference was made to an artificial aluminum oxide as being suitable for certain rubber compounds. We have tried to obtain some of this aluminum oxide, but our efforts for this have not been successful. Can you advise us where this material can be obtained?

Answer.—You can get artificial aluminum oxide from the L. H. Butcher Co., 100 William Street, New York.

Wants Second-Hand Rubber Machinery

Inquiry No. 22.—We are in the market for one horizontal vulcanizer with a 70-in. door suitable for curing automobile tire inner-tubes. We also want to purchase a second-hand tube wrapping lathe and a wrapping machine for wrapping tubes built on a circular mandrel. Can we find this machinery in New York City?

Answer.—The Machinery Utilities Co., 500 Fifth Avenue, New York, should be able to supply you with the machinery you desire.

Wants Handbook on Compounds

Inquiry No. 23.—Have you a handbook giving formulas for rubber insulations and for making other rubber goods? If not, where can I get such a book?

Answer.—We know of no handbook giving formulas for rubber compounds of any kind. However, you can probably get the information you want either from Wilmer Dunbar, consulting rubber engineer, Greensburg, Pa., or from Dr. Frederick J. Maywald, rubber chemist, 154 Front Street, New York City.

The Coloring of Rubber Goods

By H. Gastinger

The art of coloring soft and hard rubber with organic and inorganic coloring matter is as old practically as the industry itself. As far back as 1846, Alexander Parkes in his British Patent No. 11,147 described methods of coloring rubber and gutta percha, or compounds containing these materials, and also methods of vulcanizing articles made of colored rubber and gutta percha stock.

Generally speaking, there are two distinct methods of coloring rubber: (1) The superficial or surface coloring method, in which lacquer or enamel colors, composed either of inorganic or organic pigments, are applied to the surface of the vulcanized rubber goods. (2) The compounding method, in which the coloring materials are mixed with rubber stock, along with the other compounding ingredients, prior to vulcanization.

Surface Coloring

The coloring of balls, dolls and other rubber toys in American practice is extensively done by oil paints applied by brush and by dipping in colored rubber solutions and with subsequent cold curing. In Germany these goods are coated with enamels, which are prepared in the following manner:

RED

Crude rubber, mixed with finest pulverized cinnabar, 750 parts; carmine golden sulphur, 650 parts.

YELLOWISH RED

Crude rubber, 750 parts; yellow golden sulphur, 800 parts; yellow ochre, 200 parts; cinnabar, 100 parts.

GREEN

Crude rubber, 750 parts; chrome green, 550 parts.

BLACK

Crude rubber, 1,000 parts; lampblack, 300 parts.

WHITE

Crude rubber, 1,000 parts; zinc sulphide, 800 parts.

These compounds are dissolved in benzine, 100 pounds of dry enamel being mixed to 500 gallons of solvent, and the varnish thus produced is applied to the rubber goods with care to prevent the formation of air bubbles.

Method of Enameling

The article to be enameled is boiled for three hours in a solution of caustic soda to remove the sulphur from its surface. It is then boiled for another hour in pure water and finally rinsed in cold water and placed in a tray to dry for from ten to twelve hours at a temperature of 68 degrees F. When thoroughly dried the article is dipped into the enamel and again dried, first, by revolving in a chamber where it is protected from dust and then by being placed in a small chamber built of wood. This chamber contains steam coils for vaporizing the curing acid and raising the temperature of the chamber to vulcanizing heat. The enameled articles are held on racks in a suitable manner.

A measured quantity of the vulcanizing fluid is then run from the outside into a shallow vessel resting on the steam coil in the curing chamber, which is tightly packed with felt material. A thermometer extends inside the room. Steam is introduced gradually into the coils and the temperature regulated to not over 104 degrees F. The vulcanizing fluid used is in proportion to the size of the room to be filled with fumes, and consists of one-third sulphur chloride and two-thirds carbon tetrachloride. Vulcanization lasts fifty minutes. The acid fumes are removed by ventilation. After the cure ammonia fumes are used to neutralize the acid clinging to the surface of the goods and stop the curing.

Lacquer or enamel used for surface coloring soft rubber goods must lend itself to all the movements and deformations of surface that are sure to take place when the goods are in use, owing to the great inherent elasticity characteristic of soft rubber, and it is safe to say that as yet no enamel or lacquer has been perfected that is really adequate for this purpose. Everybody is familiar with the fact that lacquer used in coloring rubber balls and toys very soon cracks and breaks away in scales.

Synthetic Rubber

The " Financial Prospects of Synthetic Rubber " was the subject of an interesting paper read recently by Dr. Frederick Dannerth of Newark, N. J., before the Philadelphia section of the American Chemical Society.

In his introductory remarks, Dr. Dannerth referred to the various attempts which have been made in England and America since 1909 to float companies for the manufacture of synthetic rubber. Many of these bore a close resemblance to stock-jobbing propositions. The only bona fide processes thus far recorded and which actually demonstrated progress in the art, were those of the Synthetic Products Co. of England, and the chemical works at Elberfeld and Ludwigshafen, Germany. The English company is at present handicapped by its overproduction of butyl alcohol, but if a new use were discovered for this material the process would at once become of exceptional interest.

Among the names prominently associated with the synthetic or laboratory production of rubber, Dr. Dannerth mentioned those of Perkin, Harries, Matthews, Hofmann, Strange, Coutelle and Fernbach. Many more could be added to this list, but these are the men who have done much of the fundamental work. Mention was made of the fact that if the United States were suddenly cut off from its rubber supply it would cost the American rubber industry over $250,000 per day.

Speaking of the raw material required in producing synthetic rubber, he stated that the Strange-Ferbach process required starch, and this could be economically obtained from potatoes. An annual production of 10,000,000 lb. of rubber might require 500,000,000 lb. of potatoes grown on 50,000 acres of land. The starch is converted by fermentation into acetone and butyl alcohol. Another process which has been suggested is based on the use of aldehydes and ethyl alcohol. Such a process would if rational make it possible to utilize our liquor distilleries in case of national prohibition. A process developed by the Badische Company (Elberfeld and Ludwigshaven, Germany,) is based on the use of acetone. The acetone yields, on further treatment, pinacone, dipropylene and dipropylene rubber.

The financial prospects of synthetic rubber will depend upon such factors as: The demand for rubber, the price that could be obtained for the product, the minimum price at which natural rubber can be sold, the competition which would be experienced from the natural product, the factory cost of the product, the particular process which is chosen, the extent of side products and waste products, the operation of incidental processes, the possibility of irregularities in the process, the ability to secure college trained chemists and engineers, the price of raw materials, the abundance of the raw materials, the regular supply of the raw materials, the protective action of a possible import tariff on raw rubber, the efficient conduct of the processes, the cost of labor and the choice of correct machinery and apparatus.

Obituary Notes

A. Staines Manders Dies

It is with extreme regret that we have to report that A. Staines Manders, well known to the rubber industry throughout the world as the managing director of the International Rubber and Allied Trades Exhibition, Limited, passed away Friday, February 22, in the little village of Amberley in the Cotswold Hills, Gloucestershire, England.

Born in Kangaroo Flat, Tarangulla, Victoria, Australia, in 1858, A. Staines Manders engaged in journalism and was proprietor of a number of newspapers and other publications both in Australia and in England before 1900 when he entered the exhibition field and organized many important undertakings of this nature, including the first International Rubber and Allied Trades Exhibition, in London, in 1908, and similar exhibitions held in London in 1911, in New York in 1912 and in London again in 1914.

Editor of "Who's Who in the Rubber World," the "Rubber Industry," 1911 and 1914; the "Handbook of Rubber, Cotton,

A. Staines Manders

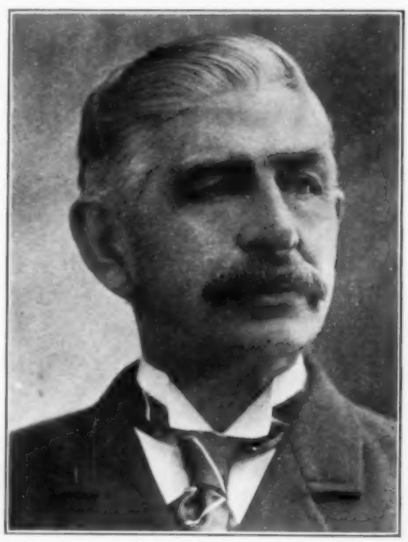
Fibers, Etc.," published in 1914 by the Fulton-Manders Publishing Co., London. Mr. Manders was ever active in the rubber trade. He distinguished himself in other fields by editing the "Medical Who's Who," the "Colonial's Guide to London," and "Mander's Guide to London."

At the outbreak of the war, Mr. Manders joined the Special Constabulary and continued on duty until ill health forced him to retire from the service. He took a keen interest in all patriotic movements and was indefatigable in his efforts to help in every possible way the members of the Australian Imperial Forces in England and on the battle front.

The Late Sir Henry Arthur Blake

It is a sad coincidence that it falls to us to announce the death within the same week of A. Staines Manders and Sir Henry Arthur Blake, both well known to the rubber trade on account of their joint connection with the international rubber exhibitions that have been held in London, England.

Sir Henry Blake was born at Limerick, Ireland, in 1840, and was a son of a County Inspector of the Royal Irish Constabulary. In 1884 he was appointed Governor of the Bahamas. Three years later he was transferred in the same capacity to Newfoundland. In 1889 he became Governor-in-Chief of Jamaica and in 1903 he became Governor of Ceylon, where he first became intimately associated with rubber planting. While Governor of Ceylon he took the initiative in bringing about the first rubber exhibition held in the East. Following this he was president of every



William Kiel

rubber exhibition held in Ceylon and London.

Sir Henry Blake was at all times keenly active in agricultural work, and rubber planters have lost a very strong, sympathetic supporter.

William Kiel Dies

William Kiel, one of the leading figures in the hard rubber industry, died at his home in Maywood, N. J., on Sunday morning, March 17, in his 76th year.

Mr. Kiel was identified with the hard rubber industry practically from its infancy, first with H. C. Meyer, in Hamburg, Germany; then with the New York Hamburger Gummi Waaren Co. in Hamburg; and later with the Franco-American Rubber Co. in Paris. He came to America in 1876 and took charge of the Mill Room of the Rubber Comb & Jewelry Co., in what is now Butler, N. J., but was then known as West Bloomingdale.

In 1898 the Butler Hard Rubber Co. of Butler, N. J.; The India Rubber Comb Co., of College Point, N. Y.; and the Goodrich Hard Rubber Co., of Akron, Ohio, were purchased by the newly formed American Hard Rubber Co., and in due time Mr. Kiel was made the General Superintendent of the new company's various plants, a position he held to December 31, 1917, when he sought retirement on account of his failing health.

Mr. Kiel was a man of strong personality, and highly respected by his associates, employes and fellow citizens. He was instrumental in the formation of the Borough of Butler, N. J., and was acclaimed the first mayor of the town, an office he filled with honor for many years.

He was ever willing to work for the welfare of the borough, and contributed freely toward its organization, toward good roads, the building of the borough hall, the establishment of a borough park, churches, public school, borough band, etc.

His remains were taken to Butler for interment in the family plot in Mount Rest Cemetery, and the community was assembled to meet and accompany the funeral procession to the town hall, where the body lay in state until practically the entire population of Butler had filed past and paid their last respects to the memory of the man they all knew so well.

Rubber Exports from Singapore

Exports of rubber from Singapore to the United States amounted to 25,474,936 lbs., in 1917, with a value of $14,103,936. In 1916, 9,909,738 lbs. valued at $5,645,857 were exported. These figures show a considerable increase in both quantity and value of plantation rubber, and is a remarkable record for the export of a single commodity from so small a territory as the Malay Peninsula. Although there has been a large increase in actual production and total exportation of rubber from the Peninsula, such increase has not been in the same proportion as that in shipments to the United States.

Sir Henry Arthur Blake

U. S. Clearing House for Women Workers

A clearing house for woman labor, to be conducted under the direction of Mrs. Hilda Muhlhauser Richards, has been established by the Government. Should the war continue for a long period and the necessity arise, a part of the business of the new woman's division of the United States Employment Service will be to recruit women to fill the ranks of the nation's industrial army wherever men are released for military service or, because of new industrial conditions, transferred to new lines of work. At the same time, it will aid to conserve labor standards.

A building at 22 East 22d street, New York, has been rented by the new department for its activities in the New York section and the entire first floor will be given over to the work of the women's division.

"We do not aim to substitute women workers for men in any line of work," said Mrs. Richards. "Women should not do men's work when men are available for it. Only in cases where men are released for military duty and other work than their normal occupations should women be called to replace them.

W. D. MOFFAT, PRESIDENT
W. I. SEAMAN, TREASURER
ROBERT BROWN, SECRETARY

THE RUBBER AGE AND TIRE NEWS

H. M. WILLIAMS, EDITOR
W. M. MILNER, ASSOCIATE EDITOR
GEORGE NEWBOLD, BUSINESS MANAGER
H. B. SEYMOUR, ADVERTISING MANAGER

Vol. II | March 25, 1918 | No. 13

PREPARATIONS for the third Liberty Loan are under way. The drive itself is to be short, sharp and decisive.

We did not want to enter the war, but we had no other alternative. Now there can be no turning back.

The third Liberty Loan is a necessity. Our boys must have the best of everything—armament, clothes, food—they must be amply supplied regardless of sacrifices by the stay-at-homes.

The rubber industry of the United States has already proved its loyalty and its patriotism in many ways; it supported the two previous Liberty Loans nobly; it will do the same now.

One of the steps already taken to help in floating the third Liberty Loan has been the organization of the Rainbow Division Special Liberty Loan Committee of the Rubber Industry of Greater New York, which will cooperate with the rubber interests in the Empire City and assist them in their efforts in behalf of the loan.

Employing Older Men

Employers generally and rubber manufacturers in particular will scrutinize carefully the activities of the new United States Employment Service. Fortunately conditions in the rubber industry, except in isolated cases, present few labor problems of difficult solution at this time.

In many other trades the situation is less satisfactory, and ultimately the demand for labor in different fields may result in some shortage of workers in rubber centers. This is a good time for American manufacturers to consider the usefulness of men who have passed middle age.

Much hardship and sorrow have been worked throughout the land by the credence given to the opinion that workers past forty are undesirable in industry. Fortunately the tide has turned, but this country is not yet utilizing to a sufficiently large extent the experience and judgment which only come with years.

Age is scarcely an indication of a man's ability to give useful service. There are many men of fifty who have years of active service in rubber manufacturing ahead of them and who can be depended on to do excellent productive work.

At present, when skill and experience are of so much more greater value than mere man power, an opportunity is afforded of utilizing the services of every man who can yield productive power. In almost every department and branch of the rubber industry, even where brawn is the main consideration, the man past middle age can be of valuable service.

It may well be worth while for rubber manufacturers to take an inventory or census of the men in their neighborhood who have been considered as past the desirable age. The chances are that a considerable contingent can be gathered together, which could add a great many man-hours to the productiveness of rubber factories. It would be a source of genuine gratification to many workers to feel that they are still able to render service to their country and industry in their hour of need.

Furthermore, this advice need not be lost on the new government bureau.

Problems of the Rubber Goods Buyer

It has never been an easy job to buy rubber goods and just now the buyer's position requires more thought, foresight, knowledge and initiative than at any time in the history of the trade.

In the early part of 1915 the buyer's purchases were largely limited by warehouse room and his ability to pay, or obtain credit. As the manufacturers had enormous stocks, they offered liberal terms; jobbers bought heavily and passed goods on to retailers with equal facility. Toward the end of that year prices followed an upward trend and large profits were made by those who had purchased quantities of goods under favorable conditions.

In 1916 with practically every item of merchandise rising in value, there was still much speculative buying in the rubber trade.

A year ago many of those who had been most successful in business began to grow cautious, and buyers had to exercise greater care in purchasing. The danger of abrupt declines in the value of goods caused both manufacturers and jobbers to shorten their credits and to press collections.

It was not until the second half of 1917 that the war demands of the United States began to have a marked effect on the values of merchandise. Shortages of raw materials grew more and more evident and then came the transportation difficulties, which have since greatly increased. Freight embargoes and coal shortage have tended to make the situation more serious, and those merchants who had ample stocks from which to supply their customers have had reason to congratulate themselves.

The future promises to be fraught with difficulties for those who are not financially intrenched, while it promises to be full of prosperity for those who are prepared. The tightening of credits, the hard money market, and the insistence by creditors on prompt remittances for merchandise is likely to prove a menace to the financially weak. The effect will tend to eliminate price cutters and unstable concerns, composed mostly of men who do not know how to conduct business at a profit, because they lack knowledge of their actual costs and real business experience.

Eastern Rubber to Be Baled

Through the generosity of Bertram G. Work, president of the Rubber Association of America and of the B. F. Goodrich Co., a new system of packing will now be used for all shipments of crude rubber from the Middle East to this country, and the American rubber industry will be able to economize from 25 to 30 per cent cargo space on these shipments.

After several years of exhaustive experiments and at considerable expense, The B. F. Goodrich Co. has developed a new method of packing crude rubber and now donates its experience to the whole trade.

The new method consists in baling the dry crude rubber, pressing it together by mechanical power, and wrapping it in cheese cloth and burlap, steel wire being used to hold the bales together. One hundred presses have been purchased by the Committee on Rubber and Kindred Products of the Rubber Association and fifty at least of this number are already on their way to Singapore. It will probably take three or four months to arrange for using the new packing system in the Middle East, but when operations start it is estimated that it will be possible to make rubber parcels sufficiently compact to enable shippers to store a materially larger quantity of dry rubber in each cubic foot of cargo space. This economy in shipping space is so much the more important in view of the present high freight rates and in view also of rumors of the Government's intention to curtail by at least 50 per cent the present cargo space used for imports of crude rubber.

Overseas Rubber Committee

An Overseas Rubber Committee was appointed on March 15 at a joint meeting of the Executive Committee and Committee on Rubber and Kindred Products of the Rubber Association. The Overseas Committee is composed as follows: W. T. Easley, Middle Eastern representative of The B. F. Goodrich Co., Akron, Ohio; John Donaldson, Middle Eastern representative of the General Rubber Co., New York, a subsidiary of the United States Rubber Co. System, New York; J. J. Blandin, Middle Eastern representative of the Orient Rubber Co., a subsidiary of the Goodyear Tire & Rubber Co., Akron, Ohio; R. J. Obott, Middle Eastern representative of the Eastern Rubber Co., (Poel & Kelly, New York); H. S. Goodwin, Middle Eastern representative of Wilson, Holgate & Co. (Charles T. Wilson Co., New York).

At the same joint meeting a vote was passed requesting the Overseas Rubber Committee to appoint a chairman, secretary and treasurer to act in behalf of the Rubber Association of America in respect to such matters arising in Singapore and other portions of the Middle East as they might be instructed.

Arrangements have been made to provide several months' supplies of baling wire, cheese cloth and burlap at Singapore.

Rules Governing Arbitrations

The Committee on Arbitration of the Rubber Association of America has compiled the following rules and regulations governing arbitrations, which have been approved by the Board of Directors of the Association:

Committee on Arbitration

The Committee on Arbitration is composed as follows:

W. G. Ryckman, Chairman, W. G. Ryckman Co., Inc., 77 Broad Street, New York.

William E. Bruyn, L. Littlejohn & Co., 138 Front Street, New York.

Andrew H. Brown, Meyer & Brown, 33 So. William Street, New York.

Van H. Cartmell, Kelly-Springfield Tire Co. 7th Avenue and 57th Street, New York.

C. B. McKay, Fisk Rubber Co., 52 Vanderbilt Avenue, New York.

Horace De Lisser Ajax Rubber Co., Inc., 1796 Broadway, New York.

R. B. Woodbury, Hood Rubber Co., Watertown, Mass.

B. G. Work, ex-officio, The B. F. Goodrich Co., 1780 Broadway, N. Y.

Harry S. Vorhis, secretary, 17 Battery Place, New York.

I.—Controversies Which May Be Submitted to Arbitration

Any controversy which might be the subject of an action in a Court, between persons legally competent to manage their affairs, may be submitted to arbitration except one relating to an estate in real property in fee or for life; but a controversy as to the partition of real property, or as to boundaries, may be arbitrated.

The death of a party to a Submission, or the appointment of a committee of his person or property, operates as a revocation of the Submission if it occurs before the award is delivered, but not if it occurs afterward.

II.—Method of Submitting Controversies

If the parties to a controversy agree to submit the matter to arbitration they shall execute a Submission in the form hereinafter provided and file a copy thereof with the Secretary of the Committee on Arbitration and, at the time of such filing, each party to the Submission shall deposit with the Secretary the sum of Fifty Dollars; or

Any party, or parties, to a controversy with others may execute and file with the said secretary, a Submission in the form hereinafter provided (each party depositing the sum of Fifty Dollars therewith) and request an arbitration with the other party or parties named in the Submission; whereupon the Secretary shall notify such other party or parties that such arbitration has been requested and call upon it or them to execute said Submission. If executed by such other party or parties, it shall be filed with the secretary, and each such other party shall, when filing the same, deposit the sum of Fifty Dollars. If the agreement is not executed and filed and the said deposits made by such other party or parties, within three days after such notice from the secretary, the deposit or deposits made by the party, or parties, requesting the arbitration shall be returned to them together with the Submission which has been filed.

All Submissions shall be in accordance with "Form A" hereto attached and shall contain a statement of the matter in controversy in concise but sufficiently comprehensive form to express the nature of the controversy and the points submitted for decision. They shall be duly executed and acknowledged by all parties to the Submission before a notary or other official authorized to take acknowledgments of deeds, and, if signed by an agent or by one or more partners, shall be accompanied by duly authenticated power of attorney from the principal of the agent or from copartners not signing the Submission.

III.—Appointment of Committee on Arbitration

Within three days after the filing of the completely executed Submission with the Secretary and the depositing of the moneys above provided for, the Committee on Arbitration shall, in writing, in accordance with "Form B," appoint an arbitrator or arbitrators, and shall at the same time give to the parties to such Submission notice in writing of such appointment. The parties may, within two days after the receipt of the said notice, forward to the Committee written objections to the arbitrator or arbitrators appointed. Within two days after the receipt of the objection to the appointment, the Committee on Arbitration shall finally designate the arbitrator or arbitrators and give to the parties written notice of such designation. The above mentioned periods shall be reckoned exclusive of Sundays and Holidays.

IV.—Hearings Before the Arbitrators

The arbitrator or arbitrators shall, within three days (exclusive of Sundays and holidays), after their final designation, notify the parties of the time and place of the first hearing, and shall thereafter designate the times and places for all continuances of the hearings, and shall at all times control the manner in which the questions in issue shall be presented.

The arbitrator or arbitrators shall, before hearing any testimony, be sworn in accordance with "Form C," unless the oath is waived by the written consent of the parties to the Submission, or their attorneys.

The parties shall be entitled to be heard in person or by counsel, and may produce witnesses for examination; and the arbitrator or arbitrators may, by subpoena, require any person to attend before him or them as a witness, and to bring with him books or papers. A complete record shall be kept of all the proceedings.

All arbitrations in the City of New York shall be held in the rooms of The Rubber Association of America, Inc., which will furnish all reasonable facilities for conducting the arbitration, without charge over and above the fees hereinafter fixed.

The proceedings shall not be public unless so requested by the parties to the arbitration. But members of the Committee on Arbitration may be present at any of the hearings, and the records shall at all times be open to members of The Rubber Association of America, Inc., and shall also be open to others upon the written order of the Committee on Arbitration.

If there are more than two arbitrators in any case, the decision of the majority shall be the decision in the arbitration, and the majority may adjourn hearings, require the production of witnesses and otherwise do all acts which a sole arbitrator or all of the arbitrators might do in the matter of the arbitration; except that all of the arbitrators must meet together and hear all of the allegations and proofs of the parties.

All awards shall be made in writing and shall be executed and acknowledged before a notary public or other official authorized to take acknowledgments of deeds. An original of the award shall be furnished to each of the parties, and a copy shall be filed in the records of the Committee on Arbitration.

V.—Fees and Expenses of Arbitration

Each arbitrator shall be entitled to a fee of $10.00 for each case, and to reimbursement for all railroad and hotel expenses when hearings are held outside of the place of residence or place of business of the arbitrator, or when trips away from the place of hearing are required in conducting the arbitration proceedings. Additional fees may be awarded by the Committee on Arbitration in exceptionally protracted or involved arbitrations, not to exceed, in the case of any one arbitrator, Ten Dollars for each day spent in the business of the arbitration unless, at or before the commencement of the hearing a different rate of compensation is fixed by written consent of the parties.

The Rubber Association of America, Inc., shall be entitled to receive the cost of stenographic notes and transcription thereof and all other of its expenses incurred strictly in connection with the arbitration, together with $10.00, in addition, for each arbitration.

Each party shall pay all expenses in connection with calling its own witnesses (except the reporting and transcribing of the testimony), but all of the other fees and expenses shall be paid by one or more of the parties, or shared between all of them, as the arbitrator or arbitrators shall decide to be just under the circumstances.

Any unexpended balance of the deposits made at the time of filing the Submission shall, upon the completion of the foregoing arbitration, be returned.

VI.—Appeals

Any one or more of the parties may appeal to the Committee on Arbitration from the decision of the arbitrator, or arbitrators, by giving notice to such Committee, in accordance with "Form D," within five days (exclusive of Sundays and holidays) after receipt of notice of the award in the arbitration, and by paying $100.00. If more than one party appeals, the said Committee shall make such refunds that the Committee shall not receive more than $100.00 for each arbitration and that each appealing party shall pay an equal share of said $100.00.

Immediately upon the expiration of said period of five days, the Secretary of said committee shall notify each party to the arbitration as to the appeals taken and shall, at the same time, fix a date and place for the hearing on the appeal, which hearing shall be upon the record made before the arbitrator, or arbitrators, supplemented by briefs and oral argument if any party so desires.

A majority of the members of the Committee on Arbitration shall constitute a quorum to hear any and all appeals, and each member who is to hear an appeal shall, before such hearing, be sworn in accordance with "Form C" unless the oath is waived by the written consent of the parties to the Submission or their attorneys. All of the members constituting such quorum shall meet together and hear all of the allegations of the parties, and the majority decision of the members hearing the appeal shall be accepted as final by all parties.

The award on appeal shall be made in writing and shall be executed and acknowledged by all of those making it, one original to be furnished to each of the parties and a copy to be filed in the records of the committee.

VII.—The Intent in the Arbitrations

The arbitrator, or arbitrators, and the Committee on Arbitration, in conducting arbitrations and appeals shall make their rulings, orders and decisions with the end in view of applying reason and enforcing equity and fair dealing in matters of trade and commerce, irrespective of technicalities, and with the least possible delays and expenditures consistent with a comprehensive investigation of each controversy presented.

In case of any question arising as to the interpretation of these Rules and Regulations, the decision of a majority of the members of the Committee on Arbitration shall be accepted by the parties as final and conclusive.

VIII.—Duties of Secretary

The duties of the Secretary of the Committee on Arbitration (or, in his absence, the Assistant Secretary of The Rubber Association of America, Inc.), shall be as follows:

He shall receive and file all Submissions, all copies of awards, give notice of all hearings and appeals, keep a docket of all cases, and such other books and memoranda as the Committee shall from time to time direct.

He shall render all necessary assistance to the Arbitrators, attend to their clerical work; receive and disburse all fees and costs and keep careful and accurate account thereof, under the supervision of the Committee on Arbitration.

IX.—Amendments

The Committee reserves full power to amend, add to or omit any of these rules from time to time, as may be found expedient.

Forms of Submission and Notice of Appeal:

FORM A.

THE COMMITTEE ON ARBITRATION OF THE RUBBER ASSOCIATION OF AMERICA, INC.

..... } Submission
and
..... }

A controversy, dispute or matter of difference between the undersigned having arisen and relating to a subject matter the nature of which briefly stated, is as follows:
(Insert particulars here.)

We do hereby voluntarily submit the same and all matters concerning the same to such arbitrator or arbitrators as may be selected by a majority of the Committee on Arbitration of The Rubber Association of America, Inc., for hearing and decision pursuant to the By-Laws of The Rubber Association of America, Inc., and the Rules and Regulations adopted by the Committee on Arbitration of The Rubber Association of America, Inc., and pursuant to Chapter 17, Title VIII of the Code of Civil Procedure of the State of New York, and we agree to stand to, abide by and perform the decision, award, order, orders and judgment that many therein and thereupon be made under, pursuant and by virtue of, this Submission and of any appeal that may be taken by either party to the Committee on Arbitration of The Rubber Association of America, Inc., under the rules thereof. Should no appeal be made within five days of the date of receipt of notice of the finding of the arbitrators, or should an appeal, if taken, be withdrawn, or not be prosecuted in accordance with the Rules of the Committee on Arbitration governing such appeals, then such finding is considered as final; otherwise it shall be final only after the decision on said appeal. We do further degree that a judgment of the Supreme Court of the State of New York may be entered in any County in the State of New York upon any final finding herein.

We do also in all respects waive any right to withdraw from or revoke this Submission after the arbitrator or arbitrators accept their appointment hereunder, hereby expressly and specifically waiving the provisions of Section 2383 of the Code of Civil Procedure.

Dated, New York.

ACKNOWLEDGMENT FOR CORPORATION

STATE OF } *ss:*
COUNTY OF }

On this day of , 19 , before me personally came to me known, who being by me duly sworn, did depose and say that he resides in ; that he is the of the corporation described in, and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order.

Subscribed and sworn to before me this day of , 19 .
.....
Notary Public.

ACKNOWLEDGMENT FOR FIRM

STATE OF } *ss:*
COUNTY OF }

On this day of , 19 , before me personally came , to me known, and known to me to be the person who executed the foregoing instrument, who being by me duly sworn, did depose and say that he is a member of the firm whose signature he signed, and seal he affixed, and he has authority to sign the same and affix said seal; and he did duly acknowledge to me that he executed the same and affixed said seal to the foregoing instrument on behalf of his said firm, and that the same constitutes the free act and deed of his said firm.

Subscribed and sworn to before me this day of , 19 .
.....
Notary Public.

In case not all of the members of the firm sign and acknowledge the Submission, there shall be added at this point "by a duly executed power of attorney from his copartners, hereto annexed."

ACKNOWLEDGMENT FOR INDIVIDUAL
(Not an Agent)

COUNTY OF } *ss:*
STATE OF }

On this day of , 19 , before me personally came to me known, and known to me to be the person described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same for the purposes therein mentioned, and that it constitutes his free act and deed.

Subscribed and sworn to before me this day of , 19 .
.....
Notary Public.

ACKNOWLEDGMENT FOR AGENT

COUNTY OF } *ss:*
STATE OF }

On this day of , 19 , before me personally came the attorney of , known to me to be the person who, as such attorney, executed the foregoing instrument, and he being by me duly sworn, did depose and say that he, by a duly executed power of attorney hereto annexed, was empowered to execute and deliver said instrument for and on behalf of said , and he acknowledged that he executed the same as the free act and deed of the said therein described and for the purposes therein mentioned, by virtue of said power of attorney.

Subscribed and sworn to before me this day of , 19 .
.....
Notary Public.

FORM B

APPOINTMENT OF ARBITRATOR OR ARBITRATORS

In pursuance of the foregoing Submission, the undersigned, constituting a majority of the Committee on Arbitration named therein, hereby select and appoint as arbitrator (or arbitrators)

Dated

.....
.....
.....

In case objections have been filed to the original appointment and a second and final appointment is made, in accordance with Article III of the "Rules and Regulations Governing Arbitration of The Rubber Association of America, Inc.," there shall, in such final appointment be here added the word "finally."

FORM C

OATH OF ARBITRATOR

STATE OF NEW YORK } *ss:*
COUNTY OF }

The undersigned being duly sworn says that he is an arbitrator appointed under the foregoing Submission; that he will faithfully and fairly hear and examine the matters in controversy and make a just award according to the best of his understanding.

Sworn to before me this
day of , 19 .

.....
Notary Public.

FORM D

TO THE COMMITTEE ON ARBITRATION
OF THE RUBBER ASSOCIATION
OF AMERICA, INC.

.....
and } Notice of Appeal.
.....

A controversy, dispute or matter of difference between the undersigned having arisen and having being arbitrated under the rules of the Committee on Arbitration of The Rubber Association of America, Inc., and we desiring to avail ourselves of the privilege of appeal as provided in said rules do hereby voluntary request the same and all matters concerning the same to be referred to the Committee on Arbitration of The Rubber Association of America, Inc., or a quorum thereof, as Arbitrators selected by us for hearing and decision on appeal pursuant to the By-Laws of The Rubber Association of America, Inc., and the Rules and Regulations adopted by the Committee on Arbitration of The Rubber Association of America, Inc., and pursuant to Chapter 17, Title VIII of the Code of Civil Procedure of the State of New York.

In accordance with said Rules and Regulations, we deposit, with this Notice of Appeal, One Hundred Dollars.

Dated New York.

Activities of the Rubber Association

Liberty Loan Committee Appointed—Rubber Sundries Manufacturers Co-operate with Government—Standardization Committee Formed —Foreign Trade Division Meets

Special Liberty Loan Committee

Among the most effective organizations which helped to float the Second Liberty Loan was the group of committees working through the business interests in New York City.

To insure the success of the Third Liberty Loan, Benjamin Strong, Governor of the Federal Reserve Bank of New York, has organized a special Trade Advisory Committee, which will co-operate with the business interests of Greater New York and assist them in their work in behalf of their Third Liberty Loan.

Further, each trade will have a special working committee which in the case of the rubber trade will be known as the Rainbow Division Special Liberty Loan Committee of the Rubber Industry of Greater New York and is composed as follows:

Bertram G. Work, The B. F. Goodrich Co., *Chairman;* George B. Hodgman, Hodgman Rubber Co., *Vice Chairman;* William E. Bruyn, L. Littlejohn & Co.; J. Newton Gunn, United States Tire Co.; W. T. Kelly, Poel & Kelly; J. Russell Parker, Parker, Stearns & Co.; Homer E. Sawyer, United States Rubber Co. System; Henry Spadone, Gutta Percha & Rubber Mfg. Co.; Charles T. Wilson, Charles T. Wilson Co.; Clarence H. Low, United States Rubber Reclaiming Co.; Henry C. Pearson, *India Rubber World;* Herbert M. Williams, THE RUBBER AGE AND TIRE NEWS; M. L. Heminway, *Secretary and Publicity Director.*

Hope is expressed that all rubber interests in Greater New York will make their contributions to the Third Liberty Loan through this special committee, and it is hoped also that rubber concerns whose main place of business is not in New York, but who have offices in this city, will make at least part of their contributions through this channel.

Information regarding the Third Liberty Loan, its method of purchase and any other information incidental thereto can be secured through M. L. Heminway, secretary of the Committee, whose office is at the headquarters of the Rubber Association of America, 17 Battery Place, New York City, and whose 'phone number is Rector 6290.

Mechanical Goods Manufacturers and Rubber Reclaimers Meet

The Mechanical Rubber Goods Manufacturers Division of the Rubber Association held a meeting at 17 Battery Place, New York, on March 12, and the Rubber Reclaimers' Division met the same evening at the Yale Club in this city. Both meetings dealt with current business.

Rubber Sundries Division

On February 27, Harry S. Vorhis, secretary of the Rubber Association, addressed a circular letter to all manufacturers of rubber sundries, informing them that it had come to the attention of the War Trade Board of the United States government that substantial quantities of rubber sundries of various kinds, including pure rubber dental gum, sheet rubber, many kinds of surgical and medical rubber goods, rubber gloves, and sometimes small quantities of crude rubber, had been smuggled to neutral European countries, principally Holland, also Scandinavia, by sailors, and particularly by those employed on ships of the Holland-American Line and Belgian Relief ships. The circular stated that this traffic had reached such proportions that it formed a positive menace to the efforts which the War Trade Board, as well as the British Government, are making to prevent rubber of any kind reaching the enemies of the United States by way of neutral European countries.

Rubber sundries manufacturers were further informed that sailors purchased these articles usually from retail dealers, and that retailers as a rule did not make particular inquiries as to the disposition of rubber goods to their customers. The War Trade Board had informed the Rubber Association that this traffic must cease and that the rubber sundries manufacturers of the United States must take measures to make sure that their customers, whether they be jobbers or retailers, take the most stringent precautions in supervising the disposition of goods to persons unknown to them. Especially should this be so in relation to goods in any considerable quantity.

The War Trade Board warned manufacturers of rubber sundries that the most effective repressive measures would be taken if it was found that this illegal traffic in medical, surgical and dental rubber goods continued.

A meeting of the Rubber Sundries Manufacturers' Division of the Rubber Association was held on March 14, and it was voted to send to each manufacturer of rubber sundries in the United States a copy of a letter prepared by the Davol Rubber Co., Providence, R. I., and sent by that company to all its customers.

A circular letter was sent to each American manufacturer of rubber sundries on March 15, requesting them, as sundry manufacturers, to send a copy of the Davol letter to each of their customers, impressing upon them the necessity of exercising supervision over their retail sales, so far as they be able.

For the manufacturers' information, copies of letters sent to their customers by the Miller Rubber Co., Akron, Ohio, and the Tyer Rubber Co., Andover, Mass., were also attached to the circular, together with the Davol letter.

The following is a copy of the Davol letter:

DAVOL RUBBER COMPANY

PROVIDENCE, R. I., March 15, 1918.

TO OUR CUSTOMERS

Information has reached us from the War Trade Board, United States Government, that substantial quantities of rubber sundries, including dental dam, sheet rubber, surgical and medical rubber goods and rubber gloves have been smuggled out to neutral European countries, principally Holland, also Scandinavia, by sailors, and particularly by those employed on ships of the Holland-American Line and Belgian Relief ships. This traffic has reached such proportions that it forms a positive menace to the efforts which the War Trade Board, as well as the British Government, are making to prevent rubber of any kind reaching the enemies of the United States by way of neutral European countries.

It has been found that sailors purchase these articles usually from retail dealers and that retailers as a rule do not make particular inquiries as to the disposition of rubber goods to their customers.

We must ask your very personal and complete co-operation in the effort to stop this practice, for it must be stopped. We are asked to make sure that all of our customers take the most stringent precautions in supervising the disposition of goods to persons unknown to them.

The War Trade Board warn the manufacturers that the most effective repressive measures will be taken if it is found that this illegal traffic continues. We invite attention to the following section from the Espionage Act:

Section 2. Any person who shall export, ship, or take out, or deliver or attempt to deliver for export, shipment, or taking out, any article in violation of this title, or of any regulation or order made hereunder, shall be fined not more than $10,000, or, if a neutral person, imprisoned for not more than two years or both; and any article so delivered or exported, shipped or taken out, or so attempted to be delivered or exported, shipped, or taken out, shall be seized and forfeited to the United States; and any officer, director, or agent of a corporation who participates in any such violation shall be liable to like fine or imprisonment, or both.

We know that you are heartily in accord with this and we will welcome an expression from you.

DAVOL RUBBER COMPANY.

Standardization and Elimination Committee

At the March 14 meeting of the Rubber Sundries Manufacturers' Division it was voted that, in view of the great need of practicing economy and eliminating waste in all necessary products during the period of the war and also looking to permanent economies in manufacturing and simplified methods of merchandising, a special committee of six on standardization and elimination of sizes in the rubber sundries lines be appointed. Charles T. Davol, Davol Rubber Co., Providence, R. I., was elected chairman of this committee for which representatives are to be appointed by the following concerns: The B. F. Goodrich Co., Akron, Ohio; the Seamless Rubber Co., New Haven, Conn.; The Hodgman Rubber Co., Tuckahoe, N. Y.; The Faultless Rubber Co., Ashland, Ohio, and the United States Rubber Co., New York.

Foreign Trade Division

The Foreign Trade Division of the Rubber Association held a meeting on March 20 at India House in New York, and voted to study the problem of saving cargo space by economy in packing and shipping. Inquiries will be made at the various export houses and exports departments of the various rubber companies.

News of Interest to the Rubber Trade

U. S. Rubber Co.'s Annual Meeting—Canadian Consolidated Rubber Co.'s Pension Plan—Happenings at Nangatuck—American Locomotive Plant Bought by U. S. Rubber

Annual Meeting of U. S. Rubber Co.

The annual meeting of the United States Rubber Co., was held at New Brunswick, N. J., on March 19. President Samuel P. Colt presided and a large number of all classes of stock outstanding was represented in person and by proxy.

New Directors

It was decided to increase the maximum directorate to twenty-four and three new directors were elected. These were Samuel Myers, chief resident counsel of the United States Rubber Co., for the last ten years, and who as such has been most intimately associated with its affairs, and J. Newton Gunn, president of the United States Tire Co., who, in that position, has been in charge of the commercial end of the company's tire business for the last three years, and Ernest Hopkinson, closely associated with the company since it acquired the Rubber Goods Manufacturing Co.

The twenty-one retiring directors were unanimously re-elected.

Amendments to By-Laws

The proposed amendments to the by-laws which were approved by the directors recently, were adopted by the stockholders by a large majority vote and without opposition. Among the more important are the following:

Changing the date of the annual meeting of stockholders from the third Tuesday of March to the corresponding date in April and the hour of the meeting from 12 o'clock noon to 11:30 a. m., increasing the maximum number of directors from 21 to 25; provision for a chairman and vice-chairman on the board, an operating council, more than one assistant secretary and more than one assistant treasurer, and a controller.

The chairman of the board is to be the chief executive officer and as such will have special charge of all matters relating to finance and law, and general charge of the business and affairs of the company.

The president, subject to the directors, executive committee and chairman, will have direct charge of the business of the company relating to purchases, manufacturing, selling an general operations.

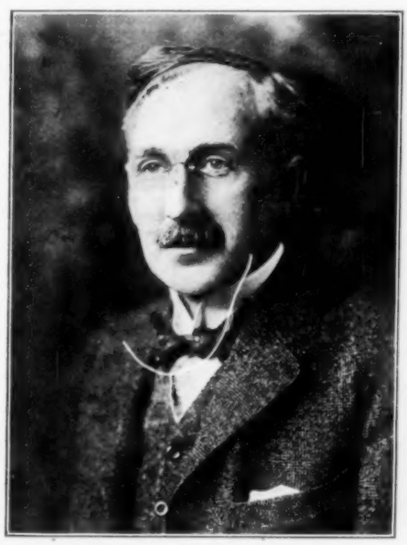
New Executive Committee and Officers

The board of directors met on March 21 for organization and elected the following executive council for the ensuing year: Executive Committee, Samuel P. Colt, James B. Ford, Lester Leyland, Walter S. Ballou, Nicholas F. Brady and Charles B. Seger. Officers—Samuel P. Colt, president; Lester Leyland, vice-president; Homer E. Sawyer, vice-president in charge of the footwear division; Elisha S. Williams, vice-president in charge of the mechanical division; W. G. Parsons, comptroller and treasurer; W. H. Blackwell, assistant treasurer; Samuel Norris, secretary; John D. Carberry, assistant secretary; H. B. Hubbard, assistant comptroller; George E. Smith, auditor. Operating Council—James Newton Gunn, chairman; Homer E. Sawyer, Elisha S. Williams, Ernest Hopkinson and Theodore Whittelsey.

Canadian Consolidated Pension Plan

A pension plan for employes who by long and faithful service have earned an honorable retirement has been adopted by the Canadian Consolidated Rubber Co., Ltd., Montreal, Que., after careful consideration of the subject. The pension plan is administered by a pension committee appointed by the board of directors and composed of A. D. Thornton, chairman; T. H. Rieder, W. Binmore, R. E. Jamieson and R. C. Colt.

The fund will be maintained by appropriations from time to time as may be necessary in administering this plan, and



A. D. Thornton

no contributions will be required or received from any employe. All male employes who have reached the age of sixty-five and all female employes who have reached the age of sixty, and whose term of employment has been twenty years or more, are eligible for pension. In the case of disability any employe who has been employed by the company fifteen years or more, and for whom compensation is not otherwise provided, may be retired from service and granted a pension.

The annual amount of the pensions is equal to one per cent of the average yearly wage for the ten years prior to retirement, multiplied by the number of years employed. Provision is made that no pension shall be less than $240 nor more than $5000 per year. For example, if an employe's average annual wage for ten years is $1000 and he has been in service for thirty years, he would receive one per cent of $1000 or $10 multiplied by thirty, or $300 per year or $25 per month.

U. S. Rubber Co. Buys Providence Plant

The United States Rubber Co. has purchased the plant of the American Locomotive Works at Providence, R. I., the consideration being, it is understood, in the neighborhood of $500,000. The property consists of ten acres of land and several buildings adjoins the solid tire plant of the Revere Rubber Co., which are owned by the company.

Samuel P. Colt, president of the company, in discussing the new purchase, said that the new plant will be equipped for the manufacture of truck tires. One of the buildings, it is intimated, will in all probability be used for the manufacture of balloons for the United States Government.

The American Locomotive Works decided to dispose of this plant when it discontinued the manufacture of Alco motor trucks and passenger cars. This company will, however, retain for a few years a portion of the factory to meet the demand for Alco parts.

Happenings at Naugatuck

The Business Training Corporation of New York is conducting a course in Business Essentials for the United States Rubber Co. system's factories in Naugatuck, Conn., the Goodyear's Metallic Rubber Shoe Co., the Goodyear India Rubber Glove Manufacturing Co., the Naugatuck Chemical Co. and the Rubber Regenerating Co., with a membership of about 130. The company bears half the expense for each employe who takes the course, and the members are finding it very instructive and interesting.

The lecturers thus far have been: B. M. Nussbaum, vice president of the Business Training Corporation on "Self Analysis;" Dr. S. H. Monell, of the Business Training Corporation on "Physical Fitness" and Prof. James E. Lough, head of Department of Psychology of New York University on "Mental Ability." Myron H. Clark, general footwear factory manager of the U. S. Rubber Co., will give the fourth lecture of the course on "Character Building."

With the idea that it might be a help to their employes in obtaining reading matter, the Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn., have installed a magazine rack in their factory, to which the employes are requested to contribute anything they desire in the way of fiction, while the company undertakes to supply the best magazines dealing with business and with the rubber industry.

It is, in great measure, the result of the efforts of the rubber companies of the borough that Naugatuck has been awarded second place in the contest for the prize offered to the town in Connecticut having the highest standing. This prize is a gift of $500 a month for the duration of the war to the chapter making the best showing.

The quota of members asked of Naugatuck was 3500, and a total of 9600, or over 274 per cent, was reached. Over fifty-six per cent of these were secured through the factories of the town. When the campaign closed the Goodyear's India Rubber Glove Manufacturing Co. was represented by 97.74 per cent of their employes in the Red Cross; the Goodyear's Metallic Rubber Shoe Co. by 97.57 per cent; the Naugatuck Chemical Co. by 82.38 per cent, and the Rubber Regenerating Co. by 72.78 per cent.

The Goodyear Metallic Rubber Shoe Co., has met some of the difficulties in the housing of its employes by building portable houses for some of the foreign help, and by buying land and putting up houses which are sold or rented to any employes who wish to take advantage of the offer.

The housing of employes in wholesome surroundings is a help to efficiency and good will on the part of the workers.

Photo by Drucker & Co.

NATIONAL ASSOCIATION OF WASTE MATERIAL DEALERS

Fifth Annual Banquet, Hotel Astor, New York

Happenings of Interest to the Rubber Trade

Convention of National Association of Waste Material Dealers March 20—Ross-Lambert Incorporates for $3,000,000—Rubber Companies to Build—Goodrich War Fund Plan

The progress of conservation in the United States was graphically outlined in speeches made before the National Association of Waste Material Dealers, in their fifth annual convention at the Astor Hotel, New York, on March 20. This convention, like its predecessors, was a success in all respects. The attendance approximated one hundred and fifty members, and a feature of the meeting was the election of officers by secret ballot, as prescribed by the new by-laws.

Following the opening of the meeting, the treasurer's and auditor's reports were read and approved. These were followed by reports by the chairmen of the various divisions. Paul Loewenthal, of the Loewenthal Co., Brooklyn, N. Y., chairman of the Scrap Rubber Division, reported that a well-attended and interesting meeting had been held by his division on Mach 19.

All the nominees named by the Nominating Committee were elected, as follows: Emanuel Salomon, president; James Rosenberg, first vice-president; Edward A. Stone, second vice-presient; Henry Lissberger, third vice-president; Ivan Reitler, fourth vice-president; F. W. Reidenbach, fifth vice-president; Paul H. Loewenthal, sixth vice-president; Mark Sherwin, treasurer; Charles M. Haskins, secretary; David Feinberg of the David Feinberg Co., Chelsea, Mass., was elected chairman of the Scrap Rubber Division.

Scrap Rubber Division

The Scrap Rubber Division was called to order by Chairman Paul Loewenthal on March 19 at ten o'clock. A very good attendance was at hand, the leading rubber scrap houses of the country being represented. While business was generally confined to routine matters, there was much informal discussion of the various conditions of the scrap rubber market. The attempt of the railroads to present a separate classification for scrap tires and a change for other scrap rubber articles, both calling for higher classifications than those in force at present, came in for much attention. Members showed considerable interest in other matters that were discussed.

The convention came to a happy close with the fifth annual banquet, which was held in the North Ball Room of the Hotel Astor on the evening of March 20. Retiring President Louis Birkenstein, who acted as toastmaster, opened the evening's speaking and was followed by Capt. A. P. Simmonds, U. S. A., D. Thomas Curtin, a war correspondent just returned from the European battlefields, and Presient-elect Emanuel Salomon.

Ross-Lambert Rubber Co.

The Ross-Lambert Rubber Co., Cincinnati, Ohio, has recently incorporated, with a capital stock of $3,000,000. The following officers have been elected: President and General Manager, Charles E. Ross, Columbus, formerly with the Lancaster Rubber Co.; Vice-President and Secretary, C. H. Lambert, Hartwell; Treasurer, A. B. Lambert, Hartwell. Besides these, the board of directors is composed of Charles H. Adams, Newport, Ky.; Sam Savin and William Horst, Cincinnati, and W. A. Ross, Columbus, Ohio.

The new company will manufacture inner tubes of truss type to take the place of air tubes and also rubber accessories. According to the incorporators, a large order has been received from the British Government. Deliveries are to begin March 25.

The company is negotiating for a factory site in Cincinnati, and the directors hope to have a plant of their own in running order in the near future which will employ from 1300 to 1500 men.

Century Rubber Works Plans

The Century Rubber Works, Chicago, Ill., is having plans prepared by the Industrial Building Co., architects, 1038 First National Bank Building, Chicago, Ill., for a six-story factory, mill construction, in West Thirty-first Street, that city. Estimated cost $100,000. H. L. Venn, 1346 Rawson Street, Chicago, Ill., is secretary of the Century Rubber Works.

Goodrich War Fund Plan

W. O. Rutherford's plan for financially supporting the Government during the war without the waste of time and expense involved in special campaigns has been worked out at the B. F. Goodrich Rubber Co.'s plant. The plan was suggested by Mr. Rutherford at the close of the war merger fund campaign, of which he was chairman. His idea was that the work could be centralized under a permanent committee and the money could be raised by taking the factories of Akron as units.

The population represented by the employes of a factory would bear its share of the contributions in proportion to its relation to the total population of Akron. In working out the plan Mr. Rutherford thought as a start that each of the 22,000 Goodrich employes ought to be willing to give a half hour's pay a week to funds for war purposes. This would go into a fund, and whenever Uncle Sam launched a new campaign Goodrich employes could just delve into their fund and give their allotment. There is nothing obligatory in these contributions.

Federal Minstrel

Employes of the Federal Rubber Co., Cudahy, Wis., gave a minstrel show, the proceeds of which were donated to the Red Cross. The chorus consisted of thirty-five voices. Solos were rendered by D. Roberts, F. Greenya, J. Wuerdeman, A. Hunter, J. Higgins, H. Hickman, E. Prankerd, S. Reuter, C. Koss, H. Samenski and A. Jaques. The olio consisted of Grecian dances.

Premier Awards Construction Contract

The Premier Rubber & Insulation Co., Dayton, Ohio, has awarded the contract for a one-story, 50x102 ft., factory to cost approximately $25,000.

Alling Adding to Plant

The Alling Rubber Co., 447 Broadway, Albany, N. Y., has increased its capital stock from $150,000 to $225,000 and plans to build an addition to its plant.

Butler Director of Ad Club

Ralph Starr Butler, in charge of the Bureau of Research of the United States Rubber Co., has been elected a member of the New York Ad Club's board of directors. Mr. Butler had previously been appointed chairman of the educational committee.

Panther to Build Addition

The Panther Rubber Co., Chelsea, Mass., has awarded the contract for a 30x63 ft. addition to its plant on Suffolk and Highland Streets.

Archer Rubber Co. Fire

Fire is reported to have recently damaged the churn room of the Archer Rubber Co., Milford, Mass. The room is in a cement one-story building apart from the main structure and apparently caught from an electric spark caused by friction. The damage was confined to the cement building.

Richard Weil in Quartermaster's Corps

Richard Weil, the well-known crude rubber man, is now in the embarkation sec-

Richard Weil.

tion, Army Transport Service, Quartermaster's Corps. The photograph shows Mr. Weil in his military uniform.

Barr with Stewart Motor Corp.

Burt R. Barr, formerly connected with the advertising department of the Goodyear Tire & Rubber Co., Akron, Ohio, has been appointed advertising and assistant sales manager of the Stewart Motor Corp., Buffalo, N. Y.

American Hard Rubber Enlarging Plant

The American Hard Rubber Co., 11 Mercer Street, New York City, has awarded the contract for an alteration and a one-story addition to its factory at College Point, Long Island. It is estimated that the improvements will cost $50,000.

Fire in American Rubber Plant

The two-story plant of the American Rubber Co., Cambridge, Mass., engaged in making raincoats for the army, was damaged in a fire recently. Manuel Cabral, the only employe in the building at the time is reported to be injured.

Aubrey with Union Supply Co.

H. M. Aubrey, who has served in various capacities with the Quaker City Rubber Co. and the H. W. Johns-Manville Co., has been appointed special packing representative of the Union Supply Co., with headquarters in Chicago.

Tire Companies Expanding

Curtis Increases Capital Stock

The Curtis Tire & Rubber Co., Muskegon, Mich., formerly the Vulcanized Products Co., has recently increased its capital stock from $200,000 to $1,000,000 to properly finance the growth of its business. The officers of the company are as follows: Curtis R. Gray, president; Henry P. Crowell, vice-president; Walter N. Macdonald, secretary, and Thomas C. Akin, treasurer.

Circle Tire Co. to Move

On or about April 1, the Circle Tire Co., Washington, D. C., will remove from 1214 Fourteenth Street, N. W., to the building formerly occupied by the Miller Brothers Auto & Supply House at 1105-1107 Fourteenth Street, N. W. The firm is composed of Richard A. Israel and Frank B. Gibb and is Washington distributer for the Miller tire. In the new store it will also handle a line of automobile supplies and accessories.

Perlman to Rebuild Factory

The Perlman Rim Co., Jackson, Mich., plans to rebuild its factory, which was recently destroyed by fire. G. S. Porter is in charge of the work.

Be Saw Awards Contract for Factory

The Be Saw Tire & Rubber Co., Ardmore, Oklahoma, has awarded the contract for a factory which is expected to cost $1,000,000.

Twin Tube Improving Plant

The Twin Tube & Rubber Co., 116 South Michigan Avenue, Chicago, Ill., has awarded the contract for a 1-story, 40 x 40 feet addition to its factory.

To Establish New Vulcanizing Plant

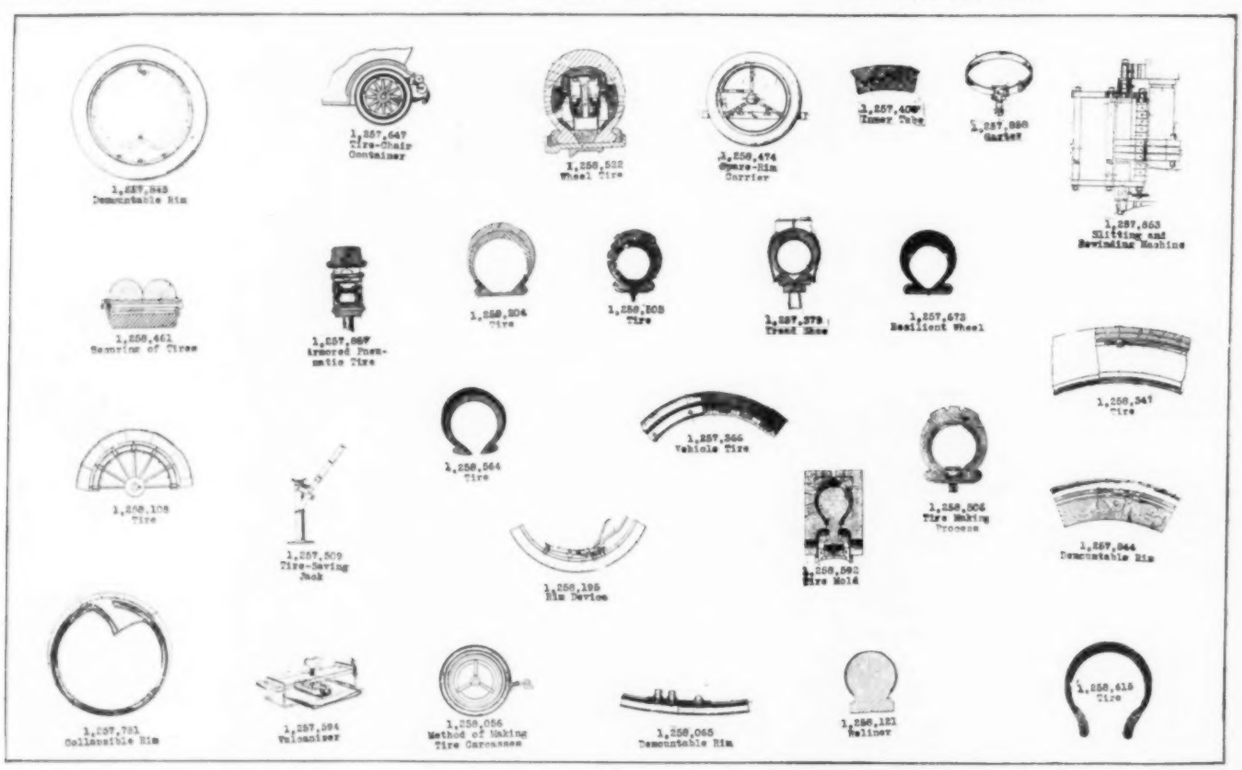
F. C. Farrar has leased the Haslacher Building in Oakdale, Cal., and plans to establish a vulcanizing plant.

Tire Repair to Build Factory

The Tire Repair & Garage Co., Cleveland, Ohio, has leased property at Broadway and Mumford Road, that city, and plans to build a 2-story, 90 x 155-feet factory, which will cost approximately $60,000.

Carlisle Distributors

The Carlisle Cord Tire Co., New York, which was formed May, 1917, is rapidly perfecting its system of distribution. A few of the dealers who have recently contracted to distribute Carlisle tires follow: On the Pacific Coast, Tansey-Crowe Co., San Francisco; Kimball-Upson Co., Sacramento; Pacific Tire & Rubber Co., Los Angeles, and San Jose Auto Supply Co., San Jose; in the East, Post & Lester, with their chain of stores operating in Connecticut; Dayton Tire Co., Boston; Invincible Tire Co., Providence, and Del Chase Tire Co., Brooklyn; the Middle West, Auto Tire Sales Co., Minneapolis; Curtis Rubber Co., Milwaukee; James T. Short, Louisville, and Sherwood-Crippen Co., Columbus, Ohio.



American Rubber Patents

ISSUED FEBRUARY 26, 1918

1,257,305—To Frank C. Bitzenburger, Los Angeles, Cal. Tire Guard.

1,257,366—To Patrick Lavelle, Johnstown, Pa. Vehicle Tire.

1,257,379—To Edwin Mueller, Athens, Wis. Tread-Shoe for Vehicle Wheels.

1,257,409—To Nathaniel H. Shaw, Boston, Mass. Inner Tube for Pneumatic Tires.

1,257,509—To Alexander W. Marr, Canton, Ohio. Tire-Saving Jack.

1,257,594—To Alpheus Fau, Louisville, Ky. Vulcanizer.

1,257,647—To Fred C. Spahn, Schleswig, Iowa. Tire-Chain Container.

1,257,673—To Minor E. Chamberlain, Lebanon, Mo. Resilient Wheel.

1,257,780—To George F. Armstrong, Newark, N. J. Plastic composition.

1,257,781—To Charles H. Baer, San Francisco, Cal., assignor by direct and mesne assignments, of fifty one-hundredths to Jean T. Parker, twenty one-hundredths to Arthur L. Holmes, and ten one-hundredths to Sidney Williams, San Francisco, Cal. Collapsible Rim for Vehicle Tires.

1,257,783—To Henry D. Baumgartel, Chicago, Ill. Liquid Coating and Process of Making same.

1,257,844—To John O. Grady, Birmingham, Ala. Demountable Rim.

1,257,845—To James B. Greene, Lowndesboro, Ala. Demountable Rim.

1,257,853—To Svend Hansen, Brooklyn, N. Y., assignor to Cameron Machine Co., Brooklyn, N. Y. Slitting and Rewinding Machine.

1,257,857—To William G. Hawkins and James F. Donnellan, Chicago, Ill. Armored Pneumatic Tire.

1,257,858—To Moses L. Hawks, New York. Man's Garter.

ISSUED MARCH 5, 1918

1,258,056—To William C. Stevens, Akron, Ohio, assignor to The Firestone Tire & Rubber Co., Akron, Ohio. Method of Making Tire Carcasses.

1,258,065—To James H. Wagenhorst, Akron, Ohio, assignor to The B. F. Goodrich Co., New York. Demountable Rim.

1,258,108—To Linne Leroy Givler, Castle Rock, Mont. Tire.

1,258,121—To William Kearns, Detroit, Mich., assignor to Morgan & Wright, a corporation of Michigan. Reliner and the method of Making the Same.

1,258,195—To Charles F. Corbett, Clear Springs, Md. Device for Expanding and Contracting Demountable Rims.

1,258,204—To John Egy, Parker, Kans. Tire.

1,258,347—To Lemuel McKinnon, Ogden, Utah, assignor to Universal Airless Auto Tire Co., Butte, Mont., a corporation of Montana. Tire.

1,258,461—To Robert Reid, Glasgow, Scotland. Securing of Tires on the Wheels of Road-Vehicles.

1,258,474—To Jesse A. Scott, Oakland, and Carl Christensen, San Francisco, Cal.; said Christensen assignor to said Scott. Spare-Rim Carrier and Contractor.

1,258,505—To Harry B. Wallace, St. Louis, Mo. Tire.

1,258,506—To Harry B. Wallace, St. Louis, Mo. Process of Making Tires.

1,258,522—To Anson M. Bangs, New York Wheel-Tire.

1,258,564—To Lewis Harris, Benton, Ill. Tire.

1,258,592—To Thomas Midgley, Worthington, Ohio, assignor to Morgan & Wright, Detroit, Mich. Mold for Vehicle Tires.

1,258,615—To George F. Fisher, Roselle, N. J., assignor to Morgan & Wright, a corporation of Michigan. Tire.

TIRE NEWS

Anomalies in Tire Sizes

By F. R. Goodell

In January, 1915, the Society of Automotive Engineers realized that the car manufacturer must be confined within closer limits in his selection of tire equipment. The result of their concerted action was to prune down the long lists of odds and ends to a compact schedule of standard sizes and oversizes as follows:

Standard	Oversize
30 x 3	31 x 3½
30 x 3½	31 x 4
32 x 3½	33 x 4
32 x 4	33 x 4½
34 x 4	35 x 4½
34 x 4½	35 x 5
36 x 4½	37 x 5
36 x 5	37 x 5½
38 x 5½	39 x 6

This list was happily received by automobile manufacturers as reflected in the tire specifications of 1916 models. In fact they went the S. A. E. list somewhat better by eliminating the oversize 31 x 3½, the 37 x 5½ and the 39 x 6.

But by 1918 the trend toward high speed engines and relatively lower weights had imposed a consequent modification in tire specifications, so that the S. A. E. recommendations of 1915 were no longer in complete harmony with motor requirements. They have become particularly top heavy in the large sizes and do not afford a proper latitude in the selection of equipment for medium weight cars with high speed engines. It can be seen at a glance that this tendency, coupled with the fact that road conditions are improving each year, makes it advisable to utilize tires of a relatively smaller diameter and a relatively larger cross section area. Large rim diameters contribute very little to a tire's efficiency, as their function is primarily limited to making the car ride easier over rough roads.

On the other hand, the very essence of tire satisfaction is involved in the size of the cross section, for it is this dimension which determines the tire's cubic capacity for compressed air. Air capacity, in turn, is the measure of the load carrying ability of a tire and its general stamina. For these reasons the 1918 models showed a divergence from the 1915 S. A. E. schedule, which will undoubtedly be more noticeable in coming years.

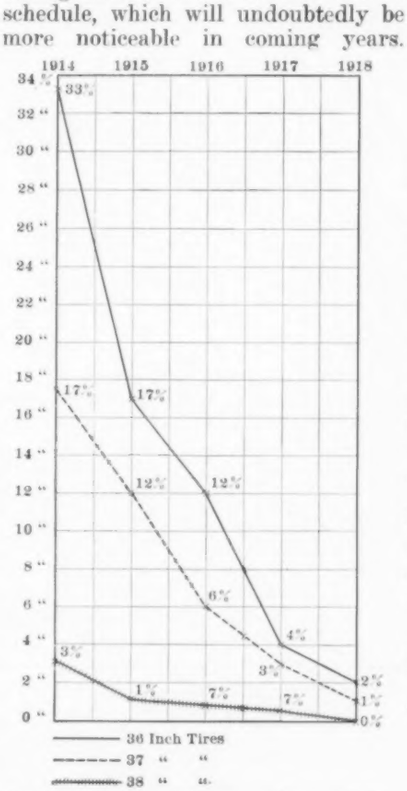


Chart Showing Trend in Tire Sizes

Such sizes as 32 x 4 and its oversize 33 x 4½ which are included in the S. A. E. list drew heavily from other sizes like 32 x 3½ and 34 x 4, while the 31 x 4 leaped into a sudden popularity.

In fact the success of the 31 x 4 as well as the 32 x 4 gave concrete expression of the need of the hour. So apparent was this need that the 31 x 4, which is itself an oversize, has been used as a base for a further oversize 32 x 4½, and still another oversize 33 x 5. In spite of the fact that these two latter sizes are based on the same rim diameter (23 in.) as the 30 x 3½ and 31 x 4, they should properly be scheduled as a new standard size (32 x 4½) and corresponding oversize (33 x 5). This progressive stepping up of the cross section for a constant rim diameter is right in tune with the times and will have wholly beneficial results.

S. A. E. Standards and 1918 Equipment

To sum up: A comparison of the S. A. E. list with the original equipment of 1918 models shows that the large sizes 37 x 5½, 38 x 5½ and 39 x 6 have not been utilized, nor has the oversize 31 x 3½. On the other hand, five sizes appear which are not in the S. A. E. schedule, the 28 x 3, 32 x 4½ and 33 x 5, together with two other sizes, 36 x 5½ (1918 Pierce 66) and 36 x 3½ (1918 Dispatch), which are relatively negligible, each being used by but one model. Thus while the total of each remains at eighteen, there has been a marked falling off in the use of large sizes. The chart, Fig. 1, shows this very clearly and indicates that the diameters 36, 37 and 38 are "dropping out of the league."

If a "composite" tire had been made up from the average specifications of past models, its size for each year would be approximately:

1913	35.0 x 4.3
1914	34.5 x 4.2
1915	34.0 x 4.0
1916	33.6 x 4.1
1917	33.3 x 4.2
1918	33.0 x 4.2

This illustrates very clearly the yearly trend toward smaller diameters. Now, while the cross section average remains almost constant at four inches, it does not give an altogether correct impression of what has taken place. As a matter of fact, there has been a very marked increase in the average cross section, particularly noticeable amongst those cars which formerly carried 3½-in. and now use 4-in. tires. But coincident with this, and offsetting it somewhat, there has been a general dropping off in the 5 and 5½-in. sizes.

In 1913 a 4-in tire was only *average*—there being three larger sizes in

general use, but in 1918 there are only two larger sizes. The trend from 3½ to 4 is particularly wholesome, as in past years manufacturers, for competitive reasons, were often guilty of sending out cars considerably "under-tired." This was particularly noticeable in many models carrying 32 x 3½ tires, and it is gratifying to note the many instances where a change has been made in favor of the size 32 x 4.

Oversized Tires

Another evidence of the more enlightened attitude of the car manufacturer is his increasing use of oversized tires as original equipment. A digest of the 1918 list shows that over 25 per cent of all models carry the oversize tire for their particular rims. While this move indicates the good intent of the manufacturers in question, it is not an unmixed blessing. It withdraws from the motorist his principal panacea for tire troubles caused by overloading. Many of them increase the estimated average load by adding Selan or limousine tops, extra spare tire equipment, and the like, and should properly change over to tires with a larger cross section area.

They cannot do this where the car already carries oversize tires, and hence the motorist has lost a very practical remedy. In those instances where the manufacturer equips only the rear wheels with oversize tires, the situation is doubly aggravated by the dismal necessity of having two sets of sizes to consider. The oversize is a mighty fine thing in its place, but it seems distinctly out of place as original equipment—it should more properly constitute a leeway for emergency.

The owner who has an oversized equipment wished on him at the start is often betwixt the devil and the deep blue sea. Whenever his average load increases appreciably, he finds himself limited to three alternatives.

First—To inflate the tires beyond the normal schedule, which is uncomfortable and bad for the car.

Second—To keep the pressure at normal in spite of the increased load, thus converting the car into a tire hog.

Third—Buy a new set of wheels and rims and charge the expense to car upkeep.

One of the most noticeable instances of this is found in the 35 x 4½ to which many manufacturers turned when the conviction reached them that the 34 x 4 equipment formerly used was inadequate. The most satisfactory solution to all parties would have been found in stepping up to the next standard size 34 x 4½, thus leaving the owner with a "kicker" in the shape of the 35 x 5. Some manufacturers did this, but others, either through thoughtlessness or because of the expense involved in altering their designs and equipment, were deterred from making this logical constructive change.

Further Weeding-Out Desirable

Up to this point we have been discussing that part in the weeding out process which has taken place almost unconsciously—due to gradual changes in car design and road conditions. Now let us turn a penetrating spotlight on the revised list and see whether or not some additional excess baggage cannot be given the well-known Raspberry.

Take for instance the 30 x 3 and its oversize, 31 x 3½, is there any technical exigency so urgent as to demand the continuance of these sizes when the 30 x 3½ is so competent to perform the work? The enormous duplication of stock thus caused is a ringing indictment against perpetuating this size, if it can be avoided.

Henry Ford buys tires to use—not to resell, but if he ever goes into the tire business as a *dealer*, he will bring Henry Ford the car maker to a strict accountability on this item. While we are in a reckless mood, let us lay a brutal hand on the standard 32 x 3½ and its oversize, 33 x 4.

In view of the fundamental tendencies already noted, does it not seem reasonable to believe that this tire has seen its day and is ready for the skids? Either the 31 x 4 or 32 x 4 appears to be a better balanced size, and right up to "concert pitch" in adaptability to modern car requirements. This also applies to the 34 x 4 and 35 x 4½ where we have such standard sizes as 32 x 4 and 34 x 4½ as alternatives—each with their respective oversize.

If it were not for the fact that tire diameters are vastly subordinate, in their functions, to the item of cross section area, it would seem like heresy and treason to cast an appraising eye on these two veteran standbys. But with our rapidly improving standards of efficiency it would seem quite enough to give the car maker a reasonable latitude in selection—and no more—particularly at a time like this when merchandising problems must be simplified for the sake of profits and service.

Scientific Economies Will Be Practiced

Business after the war is certain to be carried on in refreshing contrast to pre-war practice. A staggering national debt must be written off by tax schedules, labor will demand and receive further wage advances, and in addition American commerce must organize to meet keen competition from abroad. This involves a shrinkage in profit margins, which must be met by a taking up of slack wherever apparent.

Waste of any kind is sure to become intolerable, and the American people are about to gain a larger conception of what actually constitutes waste. It will no longer be confined to tangible losses in material, but will embrace the entire minutiae of making, merchandising, selling and accounting—the whole panorama of business itself.

Duplication of effort, expense, or financing no matter how indirect will be labeled W-A-S-T-E and get the wholehearted attention it deserves. No industry will be sacred from the process of revision and so far as the tire business is concerned, it may well border on the profane, but getting back to our list of sizes nothing would so stimulate the distributor as a clean-cut revision downwards. A tentative schedule arrived at through elimination is given below, and it is but a humble suggestion, offered in the best interest of the trade.

PROPOSED SCHEDULE OF TIRE SIZES

Standard	Oversize
28 x 3	
30 x 3½	31 x 4
32 x 4	33 x 4½
32 x 4½	33 x 5
34 x 4½	35 x 5

This would bring us down to five standard sizes and four oversizes and would mean great economy for all concerned.

Rim and bead types will be discussed in a succeeding article.

From Farmer to Consumer via Automobile

Automobile clubs throughout the United States are now mobilizing to launch next year a big campaign to bring motorists in close touch with the farmer, and to put them in position to purchase necessities direct from the fields without freight delays and at reduced cost. Pathfinders of the Goodrich National Touring Bureau are now mapping roads into the country, arteries that run to the very heart of production.

Tacit approval of the "farmer-to-consumer plan" is given by the Government which is now seeking to formulate a scheme whereby foodstuffs can be brought direct from the farms to the consumers without entailing delays that might be disastrous to the shipment. The plan which Congress is being asked to sanction is an automobile and motor truck collection system which would relieve the railroads. It incorporates the establishment of service bureaus in cities for the benefit of the man with an automobile and the citizen who may have one at his disposal.

Information on what farmers have for sale will be distributed.

Big Road Building Program for 1918

The first detailed survey of the nation's road building plan issued by the officials of the touring bureau of the B. F. Goodrich Rubber Co., who have been in daily contact for the last two months with the highway commissioners of the several States, contains the announcement that the combined forces of the Government, States and counties will spend for highway improvement in 1918 the amazing total of $263,096,610.

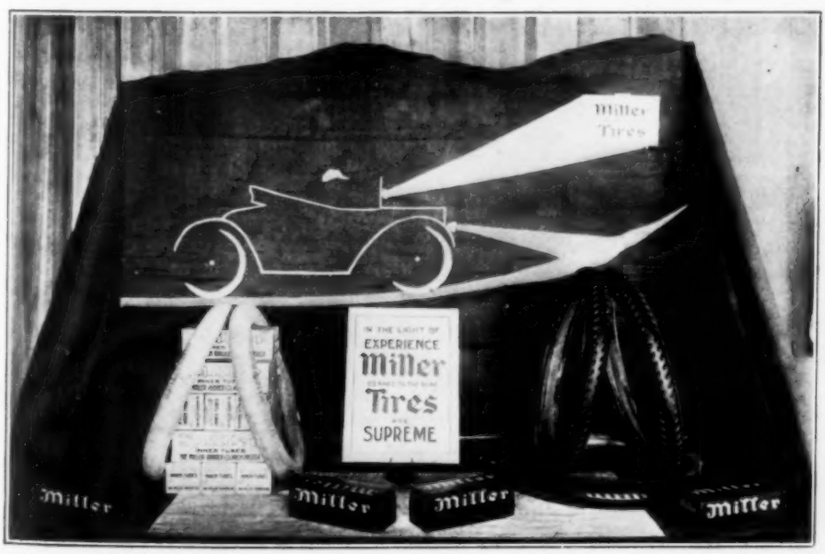
A remarkable feature of this year's national program is the overshadowing of the automobile industry by the highway industry. It is admitted that 1917 was the banner year in automobile production. And yet this year's figures on road improvement transcend the increased automobile production of last year by 35 per cent.

While the total expenditure planned for road building in 1918 seems staggering, eclipsing by 82 per cent the expenditures of any previous year and in money figures that of 1917 by $118,797,750, road officials of the Government and States said it represented merely a " drop in the bucket " of what should be spent before the war was concluded. They admit the railroad situation has made imperative lavish road appropriations—the total of this year is little better than half what Secretary McAdoo has announced as necessary for the upbuilding of the overtaxed American railroad system. Calculations by Government officials are that with good highways, motor trucks and motor vehicles are capable of carrying approximately 200 per cent more freight than the railroads. In these same calculations they estimate the value of our highways at $6,240,000,000.

Necessity for vast improvement in road conditions is emphasized in reports from the South, where unprecedented truck travel is reported. Loads exceeding for size all expectations are reported traveling over the highways, and the State Highway Commission of Maryland points out that the millions that have been invested must be spent in vain unless States undertake to repair as quickly as they build. " It is a common sight," reports the Maryland commission, " to see loads rumbling over our highways now that would ordinarily wreck a city street. Our whole road fabric must be rent through if we continue to build and not to repair."

The growing use of the motor truck as a transportation factor has necessitated the construction of highways designed to meet the increasing speed and the greater load capacity of this medium of transport over the horse-drawn vehicle. And the national road building program includes the construction of a vast arterial system designed to meet this need.

An Effective Window Display



Simple but Attractive Tire Display

Babcox Traces History of Rubber Industry

Edward S. Babcox, advertising manager of the Firestone Tire & Rubber Co., and president of the Association of National Advertisers, recently delivered a lecture on " The Rubber Industry " to a large audience in the hall of the Akron Chamber of Commerce.

Graphically sketching the rapid growth of the rubber industry, Mr. Babcox touched upon the first rubber utensils by Orbedio and Vellie, 1536; the first scientific recognition of the new material in 1736; Priestly's discovery of its earning qualities in 1770, and the invention and development of the rubber tire, which, with the internal gasoline engine, has made the automobile possible.

A motion picture emphasizing the need of ordinary care in the prevention of accidents was shown following the talk, in connection with other films depicting the rubber industry in Malaysia, the major operations of tire manufacture, and a film showing the Firestone Company's test fleet, which last fall toured through ten states in a campaign to reduce the waste of $100,000,000 of tires yearly caused by careless driving.

Since 1905 there has been a tremendous growth in rubber plantation production.

Happenings of Interest to the Tire Trade

Mason's New Office Building—Batavia Meeting—Kelly-Springfield Reduces Capital—Firestone Accessory Business Large—Business Expansion Cuts Lee Profits—Goodyear Booklet on Pneumatic Truck Tires

Mason Opens New Office Building

The new general office building of the Mason Tire & Rubber Co., Kent, Ohio, was recently opened, and by way of dedication, an entertainment was held for the Kent Board of Trade. Three hundred members were present and speeches were made by the officials of the Company and the Board of Trade.

Members of the Board were taken on a tour of inspection through the factory. In the office building was displayed crude rubber and samples of the products of the plant, and used tires showing high mileage.

President O. M. Mason made an address of welcome and expressed his appreciation of the courtesies which had been extended by the Board of Trade.

Kelly-Springfield Tire Co.'s Annual Meeting

The annual stockholders' meeting of the Kelly-Springfield Tire Co., was held on March 12 at the office of the company, 15 Exchange Place, Jersey City, N. J. About 80 per cent of the stockholders were present and by proxy and resolutions authorized by more than the necessary two-thirds majority the reduction of capital stock outstanding. After adjusting the capital stock in accordance with the action of the stockholders the present capitalization is as follows: Six per cent cumulative preferred stock authorized, $3,990,300, outstanding, $3,509,300; common stock, authorized, $5,029,900, outstanding, $4,907,200. The par value of the preferred stock is $100 and of the common, $25.

SERVICE FLAG FORMS ATTRACTIVE BACKGROUND FOR U. S. TIRE DISPLAY

Batavia Meeting

Stockholders of the Batavia Rubber Co., Batavia, N. Y., recently elected at their annual meeting the following directors for the year, George W. Hodges, W. H. Remick, W. S. Andrews and N. A. Campbell, of New York, and J. A. E. Whyte, M. H. Bochow and Judge Washburn, of Batavia.

The directors named the following officers: President and Chairman of the Board, M. H. Bochow, succeeding W. Richmond Smith, resigned; Vice-President, J. A. E. Whyte; Secretary, S. J. Bailey, of New York; Treasurer, T. W. Dynan, of Batavia; Assistant Treasurer, Peter J. Marion, of Batavia.

Confidence was expressed in the tire business outlook for 1918.

Tire Plant for Sandusky

The Ohio Tread & Tire Co., plans to build a plant for the manufacture of automobile tires in Sandusky, Ohio. H. M. Adams is interested in the project.

Big Firestone Accessory Business

The 1917 business of the Firestone Tire & Rubber Co., Akron, Ohio, was the biggest since its foundation, and one of the principal contributing factors was the sale of tire accessories. The company states that the volume in this department established recognition for the company as the largest manufacturer of tire accessories and tire repair materials in the country, sales in this alone reaching many million dollars' worth.

Business Expansion Cuts Lee Profits

The balance sheet of the Lee Rubber & Tire Corporation for 1917 shows that due to the great expansion of its business during the past year, the company's net profits amounted to only $22,588, as against $237,337 in 1916. Sales for the year totaled $4,037,895, as compared with $3,587,761 for the year before. The balance sheet as of Dec. 31, 1917, follows:

ASSETS	
Cash	$155,960
Accounts receivable	557,714
Trade acceptances	13,474
Notes receivable	5,482
Inventories	1,576,729
Working funds at branches	9,142
Deferred charges	27,781
Investment: Lee Tire Sales stock	500
Plant and equipment	1,346,704
Patents, trade marks, etc.	400,300
Total	$4,094,147
LIABILITIES	
Declared capital, 100,000 shares	$750,000
Working capital	*1,883,591
Notes payable	1,025,000
Accounts payable and accruals	125,911
Rent received in advance	500
Reserve for depreciation	231,661
Reserve for adjust. of tire claims	38,500
Income tax	.....
Surplus	38,984
Total	$4,094,147

* Being cash and book value of assets acquired in excess of required declared capital.

President John J. Watson, Jr., in his remarks to stockholders, said:

"Net profits for the year are small but extraordinary expenses have been met in the acquisition during the year of the selling organization of the company which has formerly been independently owned, and the establishment of branches in the following cities: New York, Chicago, Boston, St. Louis, Atlanta, Indianapolis, Milwaukee, Buffalo and Providence.

"Our inventories have been kept as low as possible and while we have done an increased business and crude materials have generally been higher, we have not had to materially increase our current liabilities.

"Particular attention has been given during the year to the manufacturing of a quality tire and in addition to the puncture-proof and fabric tires, the company is producing a cord tire which has been giving excellent results.

"Our sales department is reporting a good demand for our product and in many cases are behind on our deliveries."

Goodyear Booklet on Pneumatic Truck Tires

Of interest to motor truck owners is the booklet entitled "Goodyear Cord Tires for Motor Trucks," now being distributed by the Goodyear Tire & Rubber Co., of Akron, Ohio. The constantly increasing field for pneumatic cord tires for trucks makes it important that all truck owners become thoroughly familiar with the records and possibilities of pneumatic tires. And it is in order to supply this information that the company has brought out its instructive little booklet.

The booklet outlines some of the kinds of service in which these tires are contributing to longer trips and more of them each day, specifying certain motor truck users that are successfully using pneumatic tires in widely diversified service. It also points out the difficulties that truck engineers have experienced in the use of dual tires in the effort to secure greater cushioning effect, and how the big single tires outwear them and secure greater cushioning effect. Other points, the construction of the tires, the method of application to the rim, the simplicity of making tire changes, and the results that may be expected, are described. In addition there is a table of tire sizes and carrying capacities and the inflation pressures.

O. S. Tweedy Resigns

O. S. Tweedy, manager of general branch sales of the United States Tire Co., has resigned in order to become vice-president and general manager of the L. A. Young Industries Co., a new corporation in which will be consolidated all the various industries in which L. A. Young of Michigan, has been interested, including the Detroit Wire Spring Co. and several other spring manufacturers. Mr. Tweedy has had wide experience in executive and sales work, and started in the tire business with the Diamond Rubber Co.; shortly after that company began to manufacture bicycle tires in Akron, Ohio. From Akron he moved to Chicago as branch manager, which post he filled for a number of years.

Later he was general sales manager of the Federal Rubber Manufacturing Co., from which company he went to the Continental Caoutchouc Co. When the latter became a constituent of the United States Tire Co., he went over to the new combination as assistant general sales manager, later being made manager of branches.

Sterling Dance

The first annual dance of the office employes of the Sterling Tire Corp. was held on Washington's Birthday at the Masonic Hall, Rutherford, N. J. It was attended by about one hundred people and was a decided success. Ray Presterich Robert Magee, George Tietjen and the Misses Anna Schaub and Nancy Radcliffe arranged the affair.

Hood Tire Club's Convention

Branch office managers and factory department heads of the Hood Tire Co. recently held a convention in Boston. C. A. Wilkinson, general office manager, presided, and the speakers included W. W. Duncan, president of the company; J. A. Smith, director of the Hood Rubber Co., and George Watts, manager of the New York branch. Managers from the Rochester, Chicago, Buffalo, Cleveland, Kansas City, Indianapolis, Los Angeles, Washington, Atlanta, New Orleans, Birmingham and Dallas branches were present.

Dayton Makes New Tire

The Dayton Rubber Manufacturing Co., Dayton, Ohio, has, according to reports, succeeed in making a cord tire for airplanes that weighs but nine pounds, against fourteen pounds the weight of the next lightest tire. It is said that these tires will be turned out in large numbers to fill their contracts.

Sullivan Tire Co.'s New Quarters

The business of L. E. Sullivan Tire Co., Washington, D. C., formerly located at 1217 H Street, N. W., has been moved to Eleventh and H Streets, N. W. The new store has been remodelled inside and out. This firm now has four stores throughout the city.

New Firestone Wheel Distribution Plan

According to Charles H. Gerhold, Western Manager of accessory and cycle sales for the Firestone Tire & Rubber Co., Akron, Ohio, more than half a hundred jobbers from the Atlantic to the Pacific and from the Gulf to Canada have contracted for territory to distribute the Firestone wheels with demountable rims for Ford cars. "It was formerly our custom," said Mr. Gerhold, "to sell these wheels direct to the retailer, and that the plan was of value is shown by our sales of last year, which reached nearly $1,000,000. But we realize that the concentrated territory of the individual jobber should result in even greater distribution.

Detroit to New York by Motor Truck

In order to help relieve railroad congestion and at the same time insure prompt deliveries of tires to its dealers, the United States Tire Co. has established a system of motor truck transportation between Detroit and New York.

DETROIT-NEW YORK TRUCK IN FRONT OF U. S. RUBBER BUILDING

The first truck, loaded with 4300 pounds of tires for the metropolitan district, arrived Feb. 27, from the Detroit factory of the tire company after bucking the fierce snowstorms on the way east.

The big vehicle, a two-ton Pierce-Arrow, was equipped with "Nobby Cord" pneumatic truck tires, and in spite of the strenuous work they were called upon to perform, neither truck nor tires showed signs of wear. The run from Detroit to Buffalo was made in twenty-eight and one-half hours—excellent time when the conditions are taken into consideration. Between Buffalo and Albany the truck encountered the worst roads and heaviest snows of the trip. Snowdrifts completely obscured the road-bed, making it impossible for H. Dietz, the driver, to avoid the ruts. This not only slowed down the speed of the last half of the journey but added materially to the wear and tear on the truck and tires.

The United States Tire truck followed an army convoy of sixty trucks out of Buffalo, leaving them at Amsterdam a few hours before arrival in New York City.

Gillette Triples Output

The Gillette Rubber Co., Eau Claire, Wis., is increasing its output from 500 tires to 1500 tires a day, following the installation of a new callender which was purchase from the Adamson Machine Co., Akron, Ohio. Before the closing of Summer it is hoped to bring the capacity up to 2000 tires a day. Two new 350 h. p. boilers also have arrived, and are being installed.

Firestone's Boy Scout Campaign

(Special Akron Correspondence)

Firestone men lead in the campaign for boy scout leaders. Firestone boy scouts secured about 90 leaders out of 203, 40 of these being Firestoneites. Assistant Scout Master John L. Lloyd of Firestone Troop 26 got the highest number of any individual in the campaign.

Kelly-Springfield Girls Organize Club

(Special Akron Correspondence)

The girls of the Kelly-Springfield Tire Co. office have organized an athletic club under the direction of H. G. Hodge, who was the physical instructor of the Springfield, Ohio, Y. M. C. A., for a number of years. General Supt. T. C. Marshall was elected honorary president.

MANSFIELD MINSTRELS AND BRASS BAND

To Build Factory in Peoria

The Truble Pruff Tire Co., according to a report from Peoria, Ill., will soon start constructing a tire factory in that city.

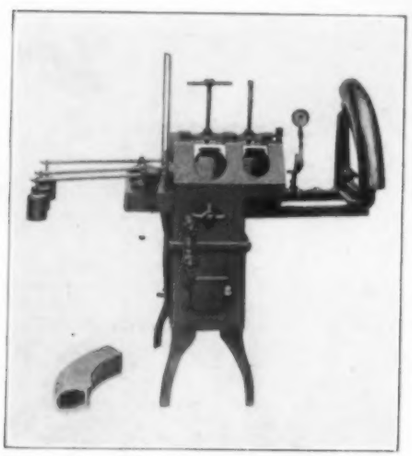
Tire and Accessory News

Akron Rubber Mold & Machine Co.'s Vulcanizing Equipment—Fisher Sub-Rim Casing—T. G. L. Rim Tool—Goodyear Cord Patch

New Vulcanizing Equipment

The "New-Type-F" tire repair vulcanizing equipment of the Akron Rubber Mold & Machine Co., Akron, Ohio, which was popular with the trade last year, has been still further improved.

One of the cavities has been increased in size from 2½-3 in. to 3½-4 in., and provided with a reducing shell to take the 2½-3-in. size. The other cavity remains the same as last year, 4½-5 in. It will be seen that this permits two popular size tires to be cured at the same time, doubling the capacity of the equipment



on this particular class of work, of which every tire repair shop always has a large amount. At the same time the less-called-for smaller work can also be handled, so that the shop using this equipment exclusively does not have to turn down any work that comes in. This device is also fitted with inside patch attachment 3½-4 in., on which practically all sizes of inside work can be handled. Each outfit is equipped with set of bead molds 2½-3 in., 3½-4 in., 4½-5 in., made in one-fifth circle only, and is equipped with a self-contained source of steam supply, so that the purchase of a separae boiler is not necessary.

The "New-Type-F Equipment" is now offered with a gas burner, and gasoline or coal oil burners are furnished at slight additional cost.

The Akron Rubber Mold & Machine Co. manufactures a complete line of tire repair equipment covering various requirements of output and service, and has recently issued a booklet entitled "Tire Repairing, the Business of the Times," which should be of interest to anyone investigating the possibilities in the tire repair today.

The Fisher Rim-Grip Sub-Casing

It often happens that the fabric in automobile tires gives away while the tread is still capable of giving many more miles of service. In order to remedy this condition the Fisher Manufacturing Co., 1708 Payne Avenue Cleveland, Ohio, is manufacturing a sub-casing, constructed on the same plan as the tire itself, with the exception that it does not have a heavy tread. This sub-casing is placed between the inner tube and the tire.

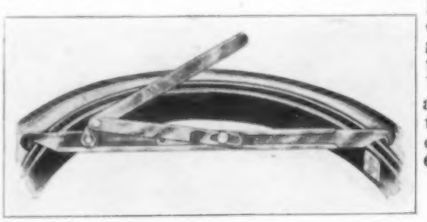
The Rim-Grip Sub-Casing has two endless steel bands built into its edges, corresponding to the two beads of a tire. These steel bands fill the same purpose as the steel cables in the beads of a straight side tire. When the inner tub expands by being inflated with air the sub-casing holds the pressure and relieves the outer tire of a large portion of the strain that

it would otherwise have to carry. It is claimed that this prevents the tire from blowing-out, and in a great many cases, by wearing the tread of the tire out completely, the mileage is more than doubled.

The sub-casing is heavily coated with vulcanizing cement, and when installed tightly adheres to the inside of the tire, thereby eliminating chafing and heating.

The T. G. L. Rim Tool

A very useful and handy device is the T. G. L. rim tool manufactured by the Metal Products Manufacturing Co., Minneapolis, Minn. As may be seen in the illustration, a sliding or adjusting bar moves back and forth in an E shaped heavily ribbed channel. The slot in the connecting link allows the adjusting bar to move backward, permitting tool inside rim for unlocking. The device may also be used for pushing joint apart and for



pushing joint and rim to place, it also allows bar to move forward for attaching hooks to outside of rim for removal from tire.

The device is of substantial steel construction, and its makers claim that its operation requires but a few seconds.

New Goodyear Cord Patch

The Goodyear Tire & Rubber Co., Akron, Ohio, announces a new cord patch which will doubtless prove a big stride in the development of repair methods. This patch can be used as a permanent repair in case of inside breaks of all kinds and injuries received from stone bruises. It can be used to reinforce permanently any weak spot in the tire resulting from any kind of injury. The company claims that, properly used, it will add many miles to injured and partly worn out casings and enable the owner to obtain the tire's full quota of service.

Al. Reeves on the Rubber Situation

Alfred Reeves, general manager of the National Automobile Chamber of Commerce, in a recent address on motor transportation and the war, said:

"We heard a good deal about the shortage of rubber, and the possibility that there would be no ships to bring it over. The ships that are bringing rubber here come to the west coast, not to the east coast, any more. They made twenty-one million tires in the country last year. One company made over five millions."

American Tires at the Front

Of the 7000 skilled automobile repair men needed by General Pershing for service in France only 120 are specified as tire vulcanizers and experts. In commenting on this fact, A. G. Partridge, general sales manager of the Firestone Tire & Rubber Co., Akron, Ohio, said recently:

"This small percentage—only 1.7 to the hundred—is a high tribute to the builders of modern passenger car and motor truck tires. It is proof that even the gruelling work of rushing munitions to the front line trenches, of literally dashing through barrage fire with a load of wounded, of meeting shell craters, devastated roads, wrecked bridges and the like as a matter of course, cannot make American-made tires quit. These tire experts are being recruited to rejuvenate the thousands of tires worn out in the strenuous service of the world war."

Women Workers in U. S. Tire Factories

Hundreds of women are now doing light work in the factories of the United States Tire Co. at Detroit. Months before the country entered the war, the company foresaw the difficulties in the way of filling vacancies caused by the conscription and enlistment, and began training women in the work to which they are best suited.

Philip Braender Leaves $1,000,000 Estate

Appraisal of the estate of Philip Braender, Rutherford, N. J., recently completed by the transfer tax appraiser, shows that it will yield the state an inheritance tax of $24,000. The estate's total value is given at $1,066,000. Of this $195,000 goes to Mrs. Elizabeth Braender, the widow, of White Plains, and the rest is divided among five sons and one grandson. Among the assets of the estate is $446,000 worth of stock in the Braender Rubber & Tire Co.

Globe Sales Doubled

Sales of the Globe Rubber Tire Manufacturing Co., for the year ended March 1, 1918, were 100 per cent greater than those of the previous corresponding period. The increased business is the result of a broader policy adopted almost exactly a year ago, by which Globe distribution was put on a national basis.

Dodge with Kelly Springfield

Garth A. Dodge has joined forces of the Kelly Springfield Tire Co., at Buffalo, N. Y. Dodge was factory manager and engineer of the Dayton Rubber Manufacturing Co., Dayton, Ohio.

Caldwell with Ajax

Elmer E. Caldwell has been appointed assistant advertising manager of the Ajax Rubber Co., New York. He has been in the advertising departments of the Michelin Tire Co., Milltown, N. J., and the Willys-Overland Co. at Toledo, Ohio.

MARKETS

Manufactured Rubber Goods

NEW YORK, March 22, 1918.

Spring business in all lines of manufactured rubber goods is opening up fairly well, and trade prospects are considered good for continuing, especially because of the favorable weather. Shipping conditions are much improved in the West and Middle West, but difficulties continue in the East, where they are made worse at certain points like New York City by the fixing of certain days to ship to certain points.

In these cases when a truck is not in line early enough the goods will not be received that day and truckmen frequently have to wait from seven in the morning to nine o'clock at night to ship a single truckload. Freight rates throughout the East have been advanced 15 per cent on an average by order of the Interstate Commerce Commission. The new rates take effect March 25.

Retail business throughout the country has shown a decided gain in the last two weeks, especially in the tire trade, due in a measure to the prevailing favorable weather conditions. Jobbers report a satisfactory volume of buying for both immediate and future delivery.

MECHANICAL GOODS

The volume of business in mechanical rubber goods, in both retail and jobbing lines, is reported to be heavy in many parts of the country. In the West, for instance, jobbers' stocks of such articles as belting and garden hose are reported very low.

Western jobbers report an unusually heavy demand for garden hose both for immediate and future delivery, and many express the fear of serious shortage in these lines before the season is over. The scarcity of cotton fabrics is said to be seriously curtailing the manufacturers' output of garden hose and also of belting.

In the East, embargoes of one kind or another continue to retard shipments of mechanical rubber goods. Dealers are said to be holding back on spring orders and showing little disposition to anticipate on summer and fall goods, although there is a general sentiment among well-informed jobbers and dealers that many items are likely to be found short as the season advances.

TIRES

The demand upon the jobbers for tire casings, inner tubes and other automobile sundries has become fairly active for the spring trade, and shipments are now being sent out to retailers.

The fine weather of the past three weeks has made a lively retail demand for tires, and retailers are growing confident in the prospects for this season's business.

There prevails considerable uncertainty as to tire prices and there are persistent rumors that a leader in the trade can be expected to take the lead at any moment in raising them very materially. One thing certain is that costs of production are constantly advancing. Higher crude rubber prices are to be expected and fabric purchased within the last six months was acquired at much higher cost than that used in making the tires that are now being delivered.

DRUGGISTS' SUNDRIES

This is usually a slack period in the wholesale end of the druggists' sundries trade and this year it is even quieter than usual, though the volume of the business that is being done is fairly good. The factories are busy on orders for both civilian and Government requirements.

In the retail end of the trade, business is reported to be unusually active in water bottles.

Cotton, Yarn and Fabric

NEW YORK, March 22, 1918.

Better weather and improved transportation conditions are helping the movement of raw cotton from Southern shipping points and are thus removing one source of worry from the mills. Prices continue at high levels, with variations that only serve to emphasize their attitude.

Attention is being directed toward the next crop, predictions concerning which are varied, according to the inclination or the interest of the prophet. To some it appears quite natural that, with the prevailing high prices, the planters will be tempted to put in a larger acreage. As against these are the persons that believe that, from patriotic motives, more foodstuffs will be grown down South, and that, anyway, the lack of fertilizers and the spread of the boll weevil will help keep down any crop tthat is planted. It is all pure guessing, however, and each one's opinion is as good as any one else's.

The only real facts brought out during the past fortnight were that 510,187 bales, exclusive of linters, were consumed in the domestic mills in February, as against 547,174 in February, 1917.

Price-fixing has again become a subject of discussion, but from the various reports it would appear that any action will be on cotton goods by agreement between manufacturers and the Government, and not by legislation.

Crop news in general points to favorable conditions practically everywhere, except in a portion of Texas, though of course this applies only to preparations and soil conditions, as with the exception of the extreme South, planting will not be general for some time yet. The acreage question is still in abeyance, with conflicting reports from various sections, and even from the same sections; as to Texas, it should not be overlooked that the prolonged drought, provided, of course, it is relieved in due course, tends to an increase in cotton acreage in place of grain.

EGYPTIAN COTTON

Reports from Alexandria show that the futures market there has been subject to erratic fluctuations, prices as a whole showing a downward tendency.

The general position does not present any material change; shipping facilities are still scanty and sailings for America have been delayed indefinitely. Receipts from the interior continue to be larger than shipments, with the result that stocks in Alexandria have increased considerably.

The business done on the spot market has also been very small, quotations for all qualities being cheaper than recently, with the exception of extra Sakelarides, the supply of which is getting scarce owing to a steady demand for this quality.

SEA ISLAND

Reports from Savannah show that there has been a better demand during the fortnight for average Extra Choice at 73c first cost port. Most of the business has been at interior points and will not show up in statistics until the cotton passes through Savannah. Holders show more inclination to sell, but as they paid high prices in the early part of the season they are not yet willing to turn loose at lower than quotations. To secure any large quantity of cotton it would probably take 75c first cost port for average Extra Choice.

The final ginners' report, issued on March 20, shows 92,501 bales, as compared with 117,559 last year and 91,844 in 1916. The distribution by States this year is as follows: Florida, 37,300; Georgia, 47,888; South Carolina, 7313.

YARNS

Prices of cotton yarns are tending strongly upward and all factors favor another rise in values. The demand for these yarns has broadened very materially, especially for civilian work, and the mills are able to get all the new business they are willing to place on their books. Most of them are proceeding very cautiously in this direction, as there are grave doubts

ALEXANDRIA STATISTICS FOR THE WEEK ENDING FEBRUARY 1, 1918

	Arrivals Cantars.	Exports (Bales) England.	Con't.	America.	Exports, Cantars.	Total Stock Cantars.
This week	131,990	14,756	....	....	113,368	2,589,617*
Same week 1917	76,243	6,349	5,620	4,159	123,102	1,123,578
" " 1916	123,344	5,849	2,922	2,874	88,382	1,411,972
Since Sept. 1, 1917	4,348,618	226,221	24,305	13,637	2,024,001	.....
Same time 1916	4,146,566	230,182	77,890	92,613	3,060,988	.....
" " 1915	3,835,949	219,016	99,040	117,838	3,314,307	.....

* 61,000 Cantars to Japan via Port Said deducted.

as to whether they will be able to make the specified deliveries. Transportation difficulties are gradually being smoothed out and shipments on the whole are coming through in better time.

FABRICS

The fabric trade is getting together in the market to take action looking toward price fixing or price regulation. Meetings that are said to receive their impetus from Washington are being held. The rumor is that the Government has told merchants that if they do not do something to prevent radical price advances, the authorities of the price fixing board will act promptly and drastically. It is understood that after merchants and manufacturers have agreed on some sort of a plan to control the situation they will submit it to Washington and action will be taken cooperatively to check the exploiting of the civilian trade.

A great many cotton goods have been placed at value pending some definite word as to the policy to be pursued in dealing with the various phases of price fixing. It is not thought likely that any retroactive action will be adopted, but that contracts in hand will be completed and future contracts that may be considered as a menace will be prevented.

No one knows what will be done, not even the Washington authorities themselves, according to the reports current in New York. It is only known that something must be done by the trade to stop further spectacular price advances in cotton fabrics, or the price fixing board in Washington will step in and act at once, leaving the matter of regulation to be thought about afterward. Fears that the whole matter may find its way into Congress are expressed by the merchants here in New York and the authorities in Washington, both of whom prefer that some form of regulation be undertaken at once so that Congress may devote its time to other matters.

In the market there is distinct apprehension that the plans of the authorities might become known and bring about a hasty liquidation of the merchandise held by speculators. However, it is not likely that such a happening will have much effect on prices in the near future, as the scarcity of goods is too well known.

Early action is likely to be taken on the question of late forward sales. This will probably not have much effect on the market, as most of the mills are sold ahead until July on such goods as are used by the rubber industry, and in the matter of late sales it should be possible to discriminate in transactions with those who must make late forward provision for their normal requirements.

The markets during the fortnight have been generally quieter than they were at the time of our last report. There is a steady demand for goods and sales are being made in small volume.

TIRE FABRICS

The tire fabric market remains quiet but firm. Heavy purchases by manufacturers last season and the curtailment of tire production on the one hand and the heavy demands the Government is making on the output of the mills contribute to the making of this situation.

It is reported that the mills have never in their history taken such a small percentage of long staple cottons. New Bedford men say that fully 50 per cent of the mills' purchases represent short staple cotton. This is due, as above stated, to Government business and to the falling off in the demand for tire fabrics.

HOSE AND BELTING FABRICS

No change can be reported in the market for mechanical ducks, the demand for which is large and the supply extremely limited. Rubber manufacturers are reported to be making efforts to cover their requirements for the season, but the mill men are unable to help them to any great extent and are dividing the available goods as equitably as possible. Prices are firm on a very high level.

DRILLS, OSNABURGS AND SHEETINGS

Business in these fabrics is going on in very much limited volume and it is apparent that the time has come for very different business from that of peace times. Price fixing is becoming a very serious problem. Merchants are far from content with the situation that prevails and under which profits of from 30 to 50 per cent are possible on staples like sheetings.

There are rumors of goods being cornered or that the scarcity is such that manufacturers and merchants must get together and apply some sort of remedy before a storm breaks on their heads from the consuming fields.

GARMENT CLOTHS

The selling end of the garment cloth trade has been quiet during the past fortnight but there is nothing new in the general market trend. Mill agents are doing what they can to hasten civilian production at their plants, for in many instances deliveries are falling behind.

BURLAPS

The burlap market remains quiet. Some holders of goods have advanced prices but buyers show no inclination to follow them as yet. On the Pacific Coast, however, spots appear to have made a real increment in value, according to reported quotations.

NEW YORK QUOTATIONS

TIRE FABRICS.		
17¼-ounce Sea Island, combed,	sq. yd.	$1.62@1.73
17¼-ounce Egyptian, combed		1.24@1.60
17¼-ounce Egyptian, carded		1.20@1.25
17¼-ounce Peelers, carded		1.00@1.25
17¼-ounce Peelers, combed		1.05@1.10
MECHANICAL DUCKS		
Hose (nominal)		.65@ .70
Belting (nominal)		.65@ .70
DUCKS		
Single Filling (pound basis)	lb.	.64
Double Filling (pound basis)		.75
DRILLS		
37-inch 2.35-yard	yd.	.32
37-inch 2.75-yard		.27
37-inch 3.00-yard		.25½
37-inch 3.25-yard		.24½
37-inch 3.50-yard		.23
37-inch 3.95-yard		.17¼
37-inch 2.00-yard Southern	lb.	.55
38-inch 2.00-yard Northern		.56½
40-inch 2.47-yard Northern	yd.	.28
40-inch 2.47-yard Northern		.35
52-inch 1.90-yard Southern		.37
52-inch 1.90-yard Northern		.34
SHEETINGS		
40-inch 2.35-yard	yd.	.32
40-inch 2.50-yard		.30
40-inch 2.85-yard		.28
40-inch 3.00-yard		.29
40-inch 3.25-yard		.30
40-inch 3.60-yard		.24
40-inch 3.75-yard		.23
40-inch 4.25-yard		.18
38-inch Jacket Cloths	yd.	.21@23
TWILLS FOR PROOFING		
37-inch 2.85-yard	yd.	.30
37-inch 3.25-yard		.32
37-inch 2-10-yard		.33
COTTON STOCKINETTES (52-inch)		
E—11½-ounce	yd.	.60@ .65
A—11 -ounce		.70@ .80
BURLAPS (Spot Carload Lots)		
40-inch 8 -ounce		18.50
40-inch 10 -ounce		22.50
40-inch 10½-ounce		23.00

Chemicals and Compounding Materials

NEW YORK, March 22, 1918.

A fair buying interest was in evidence for chemicals and compounding materials and the market, taken as a whole, presented a firm appearance. Price changes noted during the last fortnight were mostly upward revisions, occasioned by the shrinkage in supplies, brought on in many instances by the shipping difficulties. There was a strong market for acids, dry colors, lithopone, vegetable oils, zincs and naphthas. Benzol and turpentine showed irregularity on freer offerings. Aniline oil ruled steady. Magnesia products are firmly maintained by prominent handlers. Weakness in antimony had no influence with sellers of sulphurets. Sulphur quotations are firm in all quarters.

ANTIMONY SULPHURETS

Further weakness was noted in the metal, but this failed to bring out any change in sulphurets. Well-known brands of red sulphuret of antimony closed nominally at 25 to 27c per pound, with the crimson at 45 to 52c per pound.

ANILINE OIL

Some small lots were offered by second-hands at 25 to 27c per pound, drums extra, but manufacturers refused to come down in their ideas and continued to quote 26 to 27c per pound, drums extra, immediate shipment.

BENZOL

While a good volume of business has been placed in some quarters at 35c per gallon, in tank-cars, immediate shipment from works, special lots sold at concessions. On tank-car business as low as 30c has been done. Pure benzol in drums closed at 38 to 40c per gallon.

DRY COLORS

Quotations for rubber makers' quality lampblack cover a wide range, depending upon make, etc. Prominent factors quote on certain brands. English vermilion is in scanty supply and prices of $2.10 to $2.15 per pound are more or less nominal. Ultramarine blues are held at 20 to 40c per pound, as to quality.

LITHOPONE

Producers have raised their contract prices for lithopone to the extent of ½c per pound, establishing the market at 7c per pound, in car-lots, f. o. b. works. On smaller quantities 7½c per pound is asked, f. o. b. New York.

MAGNESIA

There is a steady market for magnesia products, but prices named vary slightly, according to brand. Some handlers refuse to shade 13c per pound for carbonate, while others are sellers around 11½c. Heavy calcined is quoted from 11 to 12c per pound, as to quantity and seller.

SULPHUR

A firm market is reported for refined sulphur. Stocks on hand are limited, due chiefly to the shipping situation. Refined flour is held at $3.85 per 100 pounds, in barrels, car-lot basis. Ordinary commercial sulphur is held at $2.25@$2.65 per 100 lbs., with extra quality material at $3.25@$3.75.

ZINC OXIDE

Contract prices for the XX American process zinc oxide are repeated by leading producers on the basis of 10¼c per lb., in car-lots. Spot material is exceedingly scarce and small lots have been sold by second-hands at 13¾ to 14c per lb.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	.39 @	.40
Accelerator, in drums	lb.	.80 @	1.00
Acids, Acetic, 56%	lb.	.12½ @	.13
Carbolic, C. P.	lb.	.54 @	.56
Cresylic, 95%	gal.	1.10 @	1.15
Muriatic, 20 deg.	lb.	.02½ @	.02¾

Acids, Muriatic, 22 deg.	lb.	.03 @	.03½
Nitric, 42 deg.	lb.	.09 @	.09½
Nitric, 40 deg.	lb.	.08½ @	.08¾
Sulphuric, 60 deg.	lb.	.01¾ @	.02
Tartaric, crystals	lb.	.78 @	.78½
Aluminum Flake	ton	28.00 @	30.00
Aniline oil, bulk basis	lb.	.26½ @	.27½
Antimony, metal spot	lb.	12.75 @	13.00
Oxide	lb.	15.00 @	17.00
Sulphuret, red	lb.	.25 @	.26
Sulphuret, golden	lb.	.26 @	.28
Sulphuret, crimson	lb.	.45 @	.50
Asbestos	ton	35.00 @	45.00
Asphaltum, Egyptian	lb.	.22 @	.28
Domestic	ton	20.00 @	26.00
Barium sulphate, technical	lb.	.04¼ @	.04¾
Sulphide	lb.	.06¾ @	.07¼
Barytes, prime white imported	ton	•38.00 @	42.00
white, domestic	ton	30.00 @	33.00
off color, domestic	ton	19.00 @	21.00
Benzol, pure, bulk	gal.	.35 @	.37
Beta-naphthal, sublimed	lb.	.85 @	.90
unsublimed	lb	.65 @	.70
Blacks, Drop	lb.	.08 @	.15
Ivory	lb.	.16 @	.30
Carbon gas, cases	lb.	.22 @	.30
Lampblack R. M.	lb.	.12 @	.16
Mineral blacks	ton	28.00 @	32.00
Blues, Prussian	lb.	.65 @	1.35
Soluble (potash)	lb.	1.35 @	1.60
Ultramarine	lb.	.18 @	.40
Browns, Umber, Turkey, burnt, powdered	lb.	.04 @	.05
American, burnt	lb.	.03½ @	.03¾
Cadmium sulphide, yellow	lb.	2.00 @	2.25
Carbon, bisulphide, bulk	lb.	.08 @	.08½
tetrachloride, drums	lb.	.15½ @	.16
Caustic Soda, 76@78%	lb.	.04⅝ @	.04⅝
Chalk, precipitated, extra light	lb.	.05 @	.05¾
light	lb.	.04¾ @	.05¼
heavy	lb.	.03¾ @	.04¼
China clay, domestic	ton	18.00 @	22.00
imported	ton	35.00 @	40.00
Fossil flour	lb.	.03¾ @	.05
Gilsonite	ton	40.00 @	44.00
Glue, extra white	lb.	.65 @	.75
medium	lb.	.28 @	.34
low grade		.15 @	.20
Glycerine, C. P. (drums)	lb.	.67½ @	.68
Graphite, flake (bbl.)	lb.	.18 @	.20
powdered (bbl.)	lb.	.13 @	.15
Green, chrome, R. M.	lb.	.14 @	.16
Ground glass (fine)	lb.	.03 @	—
Hexamethylene	lb.	1.15 @	1.17
Infusorial earth, powd'd.	ton	60.00 @	—
bolted	ton	70.00 @	—
Iron oxide, red, reduced grades	lb.	.05 @	.06
red, pure, bright	lb.	.12 @	.15
Lead, red oxide of	lb.	.10 @	.10½
sublimed blue	lb.	.08½ @	.09
white, basic carb.	lb.	.09 @	.09½
white basic sulph.	lb.	.08½ @	.09
Lime flour	lb.	.01½ @	.01¾
Litharge	lb.	.09½ @	.10
English	lb.	•.12 @	.13
sublimed	lb.	.09¼ @	.09¾
Lithopone, domestic	lb.	.07 @	.07½
Magnesia, carbonate	lb.	.11½ @	.13
calcined, heavy	lb.	.11 @	.12
calcined, light	lb.	.70 @	—
Magnesite, calcined, pwd.	ton	65.00 @	70.00
Mica, powdered	lb.	.03¾ @	.04¾
Mineral rubber (asphaltum base)	ton	50.00 @	65.00
Naphtha, motor gasoline, (steel bbls.)	gal.	.24 @	—
68 @ 70 degrees (steel bbls.)	gal.	.30 @	—
70 @ 72 degrees (steel bbls.)	gal.	.31 @	—
73 @ 76 degrees (steel bbls.)	gal.	.33 @	—
machine (wood bbls.)	gal	.41 @	—
Oil corn, crude	cwt.	18.75 @	19.00
corn, refined	cwt.	22.35 @	22.65
linseed (bbl.)	gal.	1.54 @	1.56
palm, Lagos	lb.	•.34 @	.34½
pine, yellow	gal.	.45 @	.46
rapeseed, refined	gal.	1.75 @	1.80
rapeseed, blown	gal.	1.80 @	1.85
rosin, first rectified	gal.	.42 @	.43
tar (commercial)	gal.	.30 @	.32
Orange mineral, American	lb.	.13 @	.13½
imported		• 15 @	.20
Paraphenylenediamine	lb.	3.00 @	3.50
Petrolatum, bbls., amber	lb.	.05¼ @	.05½
pale yellow	lb.	.05½ @	.06
Pine tar, kiln	bbl.	12.50 @	13.00
Pitch	bbl.	4.25 @	4.50
Plaster of paris	bbl.	2.00 @	2.50
Red, Tuscan	lb.	.24 @	.30
Indian (reduced)	lb.	.06 @	.07
Standard	lb.	.08 @	.11
Rosin (common to good) @ 280 lbs.	bbl.	6.40 @	6.60
Rotten stone, powdered	lb.	.03 @	.04½
Rubber, substitute, black	lb.	.12 @	.16
white	lb.	.14 @	.22
brown	lb.	.18 @	.24
Shellac, fine orange	lb.	.69 @	.70
T. N.	lb.	.63 @	—
Bleached ordinary	lb.	.59 @	.60
Bleached, bonedry	lb.	.71 @	.72
Silex (silica)	ton	24.00 @	34.00
Soapstone, powdered	ton	12.00 @	20.00
Starch, corn, powdered	lb.	4.96 @	5.19
Sulphur, crude	ton	•50.00 @	..
refined, flour, per 100-pounds, in bbls.		3.85 @	4.40
roll		3.70 @	4.15
commercial		3.25 @	3.50
Talc, American	ton	15.00 @	18.00
French	ton	22.00 @	30.00
Toluol, pure, in drums	gal.	•5.00 @	5.25
Tripolite earth	ton	60.00 @	65.00
Turpentine, pure gum—spirits	gal.	.42½ @	.43
wood	gal.	.40 @	.42
Venice, artificial	gal.	.12 @	.13
Vermilion, English	lb.	•2.10 @	2.15
Wax, beeswax, crude yel.	lb.	.36 @	.38
ceresin, white	lb.	.18 @	.19
carnauba, No. 3	lb.	.62 @	.64
Wax, Montan	lb.	•.35 @	.40
ozokerite, black	lb.	.75 @	.80
ozokerite, green	lb.	•.85 @	.95
Paraffin, refined, 118/120 M. P. (bbls.)	lb.	.12¼ @	.12½
Wax, Paraffin, 123/125 M. P.	lb.	.13 @	.13¼
128/130 M.P.	lb.	.13½ @	.13¾
133/136 M.P.	lb.	.14½ @	.14¾
Crude, 120/122 M.P.	lb.	.10 @	.10¼
124/126 M.P.	lb.	.10¼ @	.10½
Whiting, commercial	cwt.	.95 @	1.05
Alba	cwt.	1.00 @	—
Whiting, Paris, white, American	cwt.	1.25 @	—
English cliffstone	cwt.	1.50 @	—
Yellow chrome	lb.	.23 @	.25
Zinc oxide, American process, horsehead brand	lb.	†.10¼ @	.10½
selected	lb.	†.10¾ @	.11
"XX red"	lb.	†.10¼ @	.10½
French process, green seal	lb.	†.13½ @	.13¾
red seal	lb.	†.13 @	.13¼
white seal	lb.	†.14 @	.14¼
Zinc substitutes	ton	30.00 @	35.00
Zinc, sulphide, pure		•.08 @	—

†Contract prices. •Nominal.

Crude Rubber

New York, March 22, 1918.

The market for crude rubber has been upset by the many problems facing importers in regard to future importations. The shipping situation is the controlling factor, and as the developments of the last week or so have been less encouraging, prices strengthened in all quarters. Contrasted with the prices named a fortnight ago on the leading grades, the market scored advances ranging from 3 to 6c per lb. The spot position was especially strong on buying by dealers. Manufacturers showed only limited buying interest, which took some of the edge off the market towards the close.

Importers held to the opinion that the seizure of Dutch shipping would result in a further reduction of freight room on the Pacific. That the shipping situation is growing worse is borne out by the fact that instructions have been issued to pack rubber shipped from the East in the smallest possible space. It has been suggested that rubber be shipped in bales instead of cases so as to conserve freight room.

According to official customs statistics the imports of India rubber and substitutes into the United States in 1917 amounted to 434,935,489 lbs., which compares with 303,344,409 lbs. in 1916, and 221,481,921 lbs. in 1915.

The buying of crude rubber has shown improvement, but trade authorities claim that most of the business noted has been in the nature of covering by dealers who had contracts outstanding. First latex pale crepe settled at 62c per lb., spot delivery, with April-June at 56c per lb., and July-September at 54c per lb. Ribbed smoked sheets on the spot closed at 63c, the price being 1c higher than first latex. The premium for ribbed smoked sheets, however, did not obtain in the forward positions, July-September closing at 53@53½c per lb. Amber crepe and brown crepe showed little change throughout the interval.

Para up-river fine advanced sharply, closing at 61c per lb., spot and nearby delivery, a net gain of 5c per lb. The spot stocks were moderate. Up-river medium advanced 3c, closing at 55c nominal. Up-river coarse and Caucho ball closed steady at 35 and 34c per lb., respectively, showing practically no quotable change compared with the quotations of a fortnight previous. The low position of up-river coarse and Caucho had a depressing influence on the market for Centrals. Corinto, prime, closed nominally at 35c, but trading was dull. The market for African rubber was wholly nominal. Guayule showed improvement, in sympathy with the higher market for plantations, closing at 27@28c per lb. East Indian gums closed higher, due to the freight situation.

	Spot.	April-June.	July-Sept.
Para—Up-river fine lb.	61	61	..
Up-river medium	55	..	..
Up-river coarse	35	35	..
Caucho ball	34½	34½	..
Islands fine	48	..	..
Islands coarse	24	24	..
Cameta	24	24	..
Maderia fine	63	..	..
Ceylons-Smoked sheets, ribbed	63	56	53½
Smokers sheets, plain	60	55	52½
First latex pale crepe	62	56	54
Amber crepe	47	45	44
Clean brown crepe	46	45	43
Centrals—Corinto, prime	35	..	..
Esmeralda, prime	34½	..	..
Mexican scrap	34	..	..
Balata sheets	•82	..	..
Balata, block Panama	53	..	..
Guayule	27	..	..
Africans—Rio Nunez, string	•62	..	..
Massai, red	•48	..	..
East Indian Pontianak	13	..	..
Palembang	13½	..	..

• Nominal.

Scrap Rubber

March 22, 1918.

There has been no improvement in the scrap rubber situation. Business has continued of small proportions, users purchasing only for immediate needs and dealers holding back until the long expected buying movement among reclaimers makes its appearance. Prices are holding well.

The following prices were paid for scrap rubber delivered at the reclaiming mill:

Boots and shoes	8.25 @	8.40	
Arctics, trimmed	6.20 @	6.40	
Arctics, untrimmed	5.20 @	5.50	
Tires—Automobile			5¾
Bicycles, pneumatic			5
Hose, mixed	1¾ @	2	
Air brake			5
Inner tubes, No. 1	20 @	21	
Inner tubes, No. 2			10½
Inner tubes, red			10½

Among the Tire Dealers

The Standard Tire & Accessory Co., Oklahoma City, has opened a tire and accessory store at 208 West First Street.

The Muskogee Double Tread Tire Co., Muskogee, Okla., has changed its name to the Standard Tire Co.

The Firestone Tire Service Co., Dallas, Tex., has moved into a new building at 2015 Main Street.

Wonders & Williams, Marshalltown, Iowa, have bought the Knudson vulcanizing shop at Nevada.

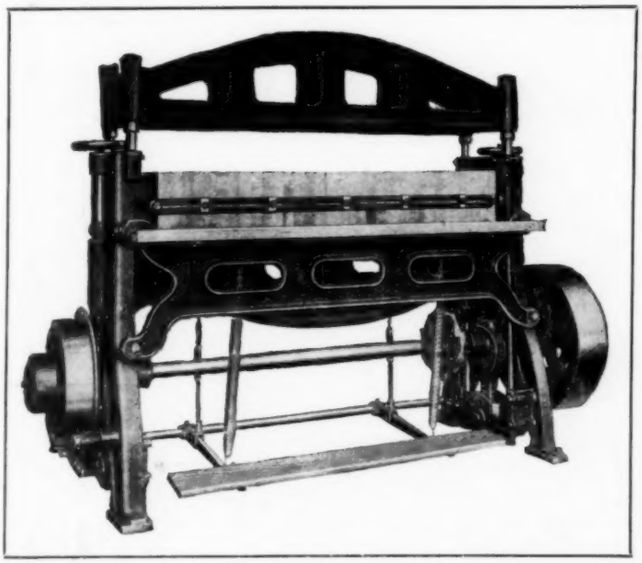
R. C. Sims, Detroit, Mich., has purchased the tire repair and vulcanizing business of A. B. Dygert, 388 Grand River Avenue.

A vulcanizing shop has been opened by B. L. Coons at Gonzales, Tex.

The Smith-Price Tire Co., Louisville, Ky., which was formerly known as the International Rubber Sales Co., has leased a building at Third Street and Broadway for a storeroom.

FIGHT
OR-
BUY BONDS
THIRD
LIBERTY LOAN

Gearless Sole-Cutting Machines



These machines are of a type that are being used very extensively in the different trades where dies are employed for cutting out parts from Leather, Rubber (cured and uncured), Rubberized Duck, Linings, Friction Cloth and all other materials used in the making of Canvas or Arctic footwear.

They are manufactured in several sizes and styles to meet the various requirements. Their construction is substantial and reliable throughout.

Further particulars and printed matter will be promptly furnished upon request.

UNITED SHOE MACHINERY CORPORATION

Albany Building *General Department* **BOSTON, MASS.**

Tire Manufacturers, Jobbers, Dealers, and Users should read

The Rubber Age and Tire News

24 issues - - - - - $1.00

120 West 32d St., New York City

F. R. Henderson & Co.

IMPORTERS

Crude Rubber

NEW YORK CITY AKRON, OHIO

RECLAIMED RUBBER

THAT HAS STOOD THE TEST FOR YEARS

Special GRADES for the following TRADES:

INSULATED WIRE
BOOT *and* SHOE
MECHANICAL—AUTO TIRE
PROOFING
HARD RUBBER

We will cheerfully furnish samples upon request

Somerset Rubber Reclaiming Works

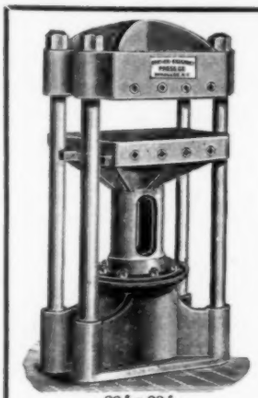
NEW BRUNSWICK, N. J.

Factory—East Millstone, N. J., Somerset County

T. B. LIEBSTEIN

Buyer of Rubber Machinery of every description, cured and uncured rubber, discarded compound stock, fabric scrap, seconds, chemicals, or any other refuse scrap.

72 Chestnut St., Newark, N. J.



20" x 20"

HYDRAULIC
STEAM PLATE
PRESS
FOR
Mechanical Goods

Notice air-cooled ram. Long distance between hot steam plate and cylinder packing. Broad foundation, etc. Send for catalogue.

BOOMER & BOSCHERT PRESS CO.

420 West Water Street
SYRACUSE, N. Y.

RUBRAX

MANUFACTURERS
of
Elastic
Hydro-Carbons

THE U.S. ASPHALT REFINING CO. RUBRAX QUALITY FIRST TRADE MARK

Plants and Branches at
BALTIMORE, MARYLAND
CARTERET, NEW JERSEY
PHILADELPHIA, PENNSYLVANIA

THE INTEROCEAN OIL COMPANY
90 West Street: NEW YORK

EXTENSION BLADES AND HANDLES
I.P.HYDE
Mention Extension Blades and Handles to any experienced rubber mill worker and his mind just naturally turns to the I. P. HYDE Brand.—Why? Because he has come to know that they are right for his use, made right for rubber mill work and work right. Let us send you Catalog - R, shows 80 different styles of rubber cutting knives.
HYDE MFG. CO.
Southbridge Mass.
I.P.HYDE

YOU CAN

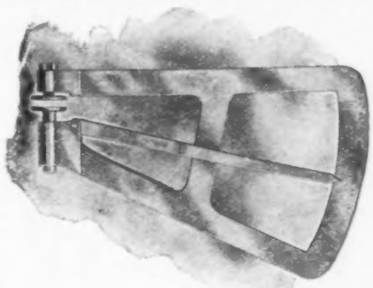
—Dry all kinds of crude rubber in the same kiln at the same time.
—Process it while drying it.
—Prevent oxidation and injury from improper drying.
—Increase its tensile strength
—Reduce the time of breaking down 25 to 50%.
—Dry compounds in their original packages along with the rubber.

With the

Hunter Patent Process

Full Particulars on Request
Address
Hunter Dry Kiln Company, Indianapolis, Ind.
Laboratory and Offices, 26th St. and Cornell Ave.

MEASURING GAUGES



FOR
MEASURING
SHEET
RUBBER

HOME OF
BALL BEARING STITCHERS
AND ROLLERS FOR TIRE & SHOE MANUFACTURING

TOOLS
OF
QUALITY

(ESTABLISHED IN 1849)
THE HOGGSON & PETTIS MFG. CO.
NEW HAVEN, CONN., U. S. A.

J. H. LANE CO.

334 FOURTH AVE. NEW YORK

Tire Fabrics
Cord and Square Woven

Hose and Belting Ducks
Drills and Sheetings

Yarns

CHICAGO BOSTON

TIRE FABRICS

Made of Yarns of Our Own Spinning, and with
Machinery of Latest and Most Approved Type

The Fabric for Endurance

MANHASSET MFG. COMPANY, Providence, R. I.

MARLBORO COTTON MILLS

McColl, S. C.

Tire Fabrics

Combed Sea Island, combed and carded Peelers and Egyptians.

Yarns

4s to 60s, combed and carded, single and ply; warps, skeins, tubes and cones.

Sold direct, or through E. D. Tannahill, 350 Broadway, New York City, N. Y.

TIRE FABRICS

SEA ISLANDS, EGYPTIANS, PEELERS

CHAS. A. MEYER

350 BROADWAY, NEW YORK

MARLBORO TIRE FABRICS—

BOSTON YARN COMPANY

60 Federal Street Boston, Massachusetts

FABRICS

Auto Fabrics to Specification Sea Islands, Egyptians and Peelers

WILLIAM L. LYALL, President and Treasurer
THOMAS M. GARDNER, Secretary
HENRY V. R. SCHEEL, Assistant Treasurer
T. J. KELLY, Superintendent

BRIGHTON MILLS

PASSAIC, NEW JERSEY

Tire Fabrics of Sea Island, Egyptian and Peeler Cottons

Special Constructions for Special Purposes Where Quality and Service are Foremost Considerations

ALL GOODS SOLD DIRECT

MAIN OFFICE, PASSAIC, New Jersey
New York Office, 257 Fourth Ave.

TIRE FABRICS

OF EVERY DESCRIPTION

TAYLOR, ARMITAGE & CO., Inc.

Equitable Building, 120 Broadway, New York

SEA ISLANDS EGYPTIANS PEELERS

FABRICS TO SPECIFICATION

PASSAIC COTTON MILLS AMERICAN TIRE FABRIC CO.

H. MUEHLSTEIN & CO.

BUY and SELL

Any Grade **SCRAP RUBBER** Any Quantity

NEW YORK
3rd Ave. & Harlem River

CHICAGO
114 W. Van Buren Street

AKRON
311 Second Nat'l Bldg.

BOSTON
176 Federal Street

MONTREAL
32 Colborne Street

CABLE ADDRESS
"STEINMUL" NEW YORK

LONDON, ENGLAND
124 Minorles

ARE YOU HAVING TROUBLE AT THE WORKS? Probably I can help you to overcome it. I am practically acquainted with the mill, as well as the laboratory. Now is the time to cut out waste and lost effort.

FREDERICK J. MAYWALD, F. C. S.

Consulting Chemist

'Phone 823 John 134 Front Street, New York

Experimental work on rubber in a laboratory completely equipped for making up compounds. Vacuum drying. Shrinkage tests.

TRENTON SCRAP RUBBER SUPPLY CO.

RUBBER SCRAP

CURED UNCURED

ANY QUANTITY

17-35 Perrine Avenue TRENTON, N. J.

THE H. O. CANFIELD CO.

MANUFACTURE

Moulded Specialties, Plumbers' Rubber Goods, Valves, Gaskets; Hose Washers, and Cut Washers of all kinds

Write for prices and samples

Office and Works BRIDGEPORT, CT.

Solid Tires for Trucks

The large increase in the use of heavy-duty trucks due to the war and railroad congestion has created an unusually heavy demand for Solid Truck Tires. Companies making this style Tire are very busy and indications point to a shortage soon.

I can be of valuable assistance to anyone in this field, as I have just completed an up-to-date factory. My method of attaching the base to the steel-rim and of combining the wearing portion to the hard rubber base are exceptionally effective. Tires made from my formulas and methods have gone over 18,000 miles and are still running.

I can save you a lot of costly experimenting.

WILMER DUNBAR

Consulting Rubber Engineer Greensburg, Pa.

BRANDER & CURRY

INCORPORATED

FORTY-SECOND STREET BUILDING

NEW YORK, U. S. A.

AGENTS FITCHBURG DUCK MILLS

SEA ISLAND, EGYPTIAN AND PEELER

TIRE FABRICS

CHAFING STRIPS AND LENO BREAKERS

CORD YARNS AND CORD FABRICS, SHEETINGS AND DRILLS

FOR AUTOMOBILE AND RUBBER TRADES A SPECIALTY

EMBOSSING CALENDERS

For Artificial Leather, Oil Cloth, Carriage and Automobile Covers

DRYING MACHINES

with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

The Textile-Finishing Machinery Co.

Office, No. 83 Exchange Place

PROVIDENCE, R. I.

PERFECTION

VANADIUM STEEL RUBBER SHEARS.

Our Patented Automatic Tension Shears and Scissors are the best on the market.

Used by many leading Rubber and Textile Manufacturers.

Blades constantly aligned. Ease of operation increased. Last longer. Let us prove this by sending you a sample of the size and style you use, for trial. Catalogue on request.

PERFECTION SHEAR COMPANY

No. Woodbury, Conn.

TYSON BROS., INC.

CARTERET, N. J.

MANUFACTURERS

The best grades of Rubber Substitutes and Chemicals for all branches of the Rubber Trade

Western Representative
J. A. KENDALL
524 Second National Bldg., Akron, Ohio

STOCK CARRIED IN AKRON

OBALSKI & SWEENEY, Inc.

CRUDE RUBBER

AND KINDRED PRODUCTS

Importers and Traders Building 59-61 Pearl Street

NEW YORK

The Carter Bell M'f'g *Co.*

Highest Grade

RUBBER SUBSTITUTES

White, Brown & Black

150 Nassau Street New York

We Are Now Supplying The World

WITH

UNIVERSAL STEEL CALENDER STOCK SHELLS

in 4", 5", 6", 8" and 10" diameters, any lengths from 4" to 100", any size square mandrel holes.

Materials always on hand.
Try us on that rush order.

W. F. GAMMETER Cadiz, Ohio

MAGNESIA

CARBONATE K&B OXIDE

Special 1918 Contract Prices

KATZENBACH & BULLOCK COMPANY, Inc.

NEW YORK TRENTON BOSTON CHICAGO SAN FRANCISCO

SULPHUR

BROOKLYN SULPHUR WORKS

FLOUR SULPHUR

Extra Fine and Free from Grit.
"VELVET SULPHUR" for

RUBBER Manufacturers

BATTELLE & RENWICK

80 Maiden Lane New York, N. Y.

MAGNESIA

Double Calcined Heavy — Carbonate Light Calcined

General Magnesite & Magnesia Co.

29th Street and Montgomery Avenue
Philadelphia

ERNEST JACOBY

CRUDE RUBBER
RUBBER SUBSTITUTES

CABLE ADDRESS
JACOBITE BOSTON

BOSTON MASS

TYPKE & KING, Ltd.,
ESTABLISHED 1883

Head Offices and Works

Crown Chemical Works
Commonside East, Mitcham, England
ESTABLISHED 1883

CRIMSON AND GOLDEN SULPHURETS OF ANTIMONY

Guaranteed Reliable, and Not to Vary, Always Containing Same Percentage of Free Sulphur
Made with any percentage of Free Sulphur desired

BLACK AND WHITE SUBSTITUTES, BLACK HYPO, ZINC SULPHIDE, ETC.

THE AKRON EQUIPMENT COMPANY
C. R. QUINE, *President*

Molds, Cores and Machinery for Tire Makers

AKRON, OHIO

JONES & KUHLKE

MANUFACTURERS OF

FOR GENERAL RUBBER WORK **MOLDS** FOR AUTO-MOBILE TIRES

CORES AND SPECIAL MACHINERY

48-58 West Exchange Akron, Ohio

High Grade 320° M. P. Hydro Carbon

30% Lithopone Zinc Oxide (all grades)
Carbonate of Magnesia Whiting
Barytes Caustic Soda Rubber Factice
Antimony Red Oxide Rosin Oil
Cottonseed Oil Aniline Oils Etc.

Edward B. Fulper

Main Office: TRENTON, N. J.
New York Office: 92 William St. Newark Office: 52-54-56 Lafayette St.

THOMAS HYDES

105 EAST HANOVER ST. TRENTON, N.J.

CRUDE RUBBER

Washed,
Vacuum Dried or Refined

CLASSIFIED ADVERTISING

10 Cents a word, minimum charge $2.00, payable in advance. Address replies to box numbers, care THE RUBBER AGE AND TIRE NEWS, 120 West 32d Street, New York.

FOR SALE: Mills and Washers—3 Farrel mills 42" x 16", one Farrel washer 24" x 16" in good running condition, one Thropp's vulcanizer, one Thropp's tire wrapping machine and a lot of shafting. Rotary Tire and Rubber Co., Zanesville, Ohio.

EXPERIENCED MAN fully qualified wishes post of superintendent or manager of development department in reliable and aggressive organization. Technically and practically conversant with the manufacture of automobile and bicycle tires and tubes, all classes of press and mechanical goods, belting and footwear. During last 18 years has been laboratory assistant, chief chemist, development manager, assistant superintendent, and superintendent of prominent companies. Unexceptionable references. Address Box 76.

TIRE MAN—Large manufacturing concern making 3500 tires a day are looking for a general foreman to take complete charge of tire department under the superintendent. Only men of at least five years' experience in an executive capacity manufacturing tires will be considered. In replying state age, whether married or single, salary expected and a brief outline of past experience. Excellent opportunity. Address Box 74.

POSITION WANTED by man having over 20 years' rubber factory experience (especially on hose, canvas shoes, tires and mold work). Would consider proposition to install and take charge of plant in any tropical country. Address Box 75.

FOR SALE—Limited amount used rubber machinery. Address By-Products Dept., Goodyear Tire & Rubber Co., Akron, Ohio.

WANTED—A 3-roll, 26 or 30" calender. Kindly state conditions and here the same is located. Address the Owen Tire & Rubber Co., 1900 Euclid Ave., Cleveland, Ohio.

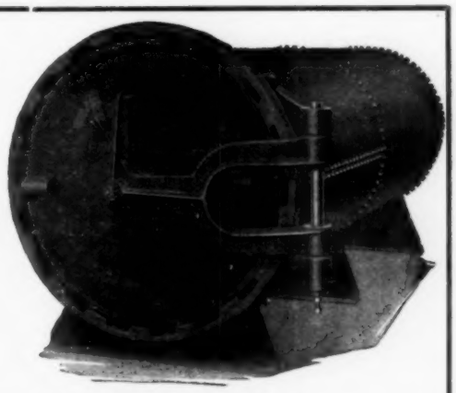
WANTED—Manufacturer to take up sale and manufacture of webbed swimming gloves. The molds are patented and perfected. Inquire of A. Zawadzki, 923 Spring Garden St., Philadelphia, Pa.

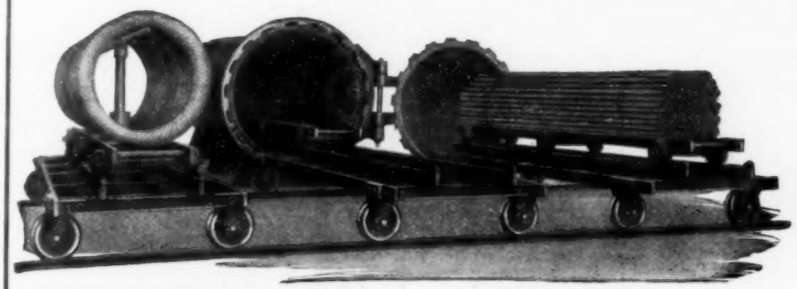
SAFETY *and* EFFICIENCY

Combined by Using the

SIMPLEX BOLTLESS VULCANIZER DOOR

On Horizontal and Vertical **VULCANIZERS**





EQUIPMENT No. 800—Showing our Standard Horizontal Vulcanizer, "Simplex Equipped," with Inside Track and Car, Outside Transfer Trucks and Special Cars for Handling Inner Tubes and Wrapped Tread Casings

EXCLUSIVE FEATURES OF THE "SIMPLEX" DOOR

ENTIRELY SELF CONTAINED
Door operates on its own hinges.

EASE OF OPERATION
Door turns only 8 inches to open and close.

SAFETY INSURED
The safety and tightness of door is not subject to manual operation, as there is not a bolt or nut to tighten. Heavy cast steel lugs automatically support door against pressure.

EFFICIENCY
Can be opened and closed in less than 30 seconds.

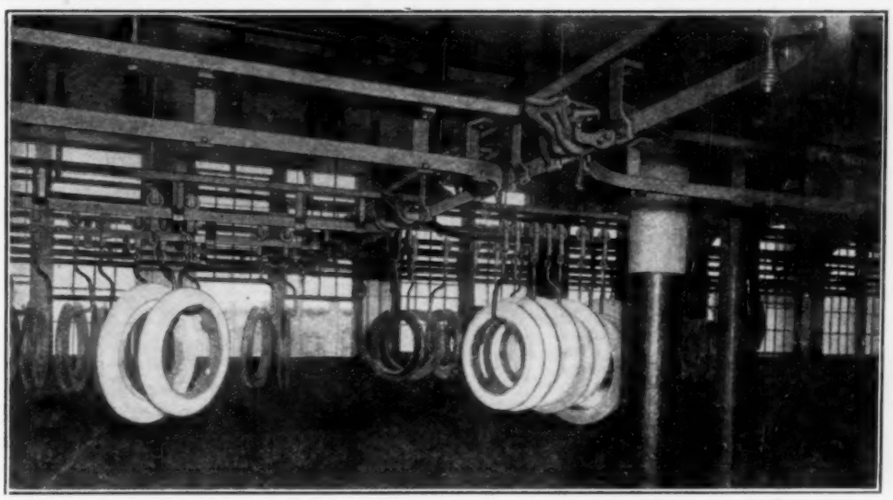
THE BIGGS BOILER WORKS CO.

Kent St. and B. & O. R. R. AKRON, OHIO

J. DUNCAN COMPANY

BOSTON, MASS.

Designers *and* Manufacturers *of*



Our Equipment in Use at Fisk Rubber Company

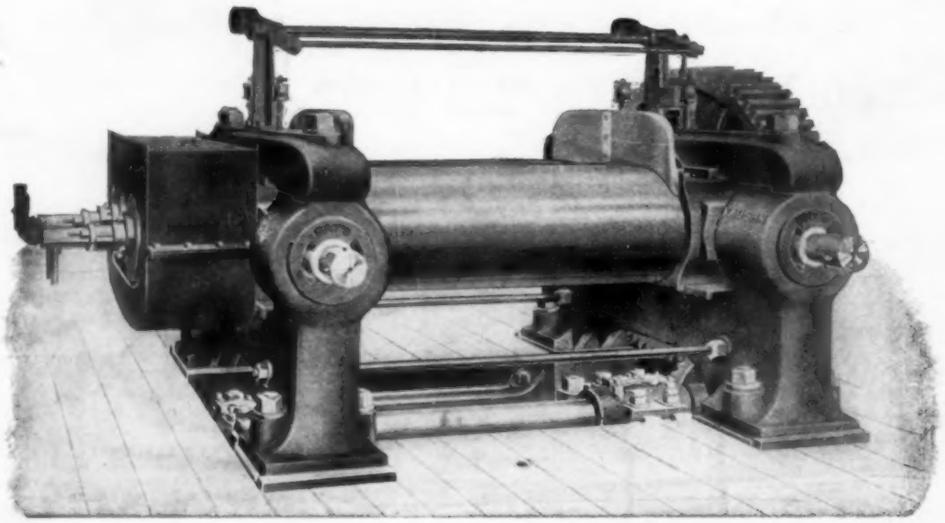
OVERHEAD TROLLEY SYSTEMS

for the economical handling of tires, cores, moulds and every description of rubber goods

Economizes Floor Space
Cuts Your Costs

Promotes Convenience
Inquiries Solicited

THE WILLIAMS PRINTING COMPANY, NEW YORK



VAUGHN MACHINERY

Located at the very heart of the rubber industry, our Engineers are in constant touch with the world's largest producers of rubber goods of every description, which gives them first hand knowledge of the requirements of present day practice.

Safe--Economical--Efficient

THE TURNER, VAUGHN & TAYLOR CO.

Cuyahoga Falls, Ohio